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THE UNIVERSITY OF ALBERTA

THE INFLUENCE OF A TRAINING PROGRAM IN COMMUNICATION SKILLS UPON THE VERBAL INTERACTIONS BETWEEN COACHES AND ATHLETES

by

© LESLIE ANN CARLSTON

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF MASTER OF EDUCATION

IN

COUNSELING PSYCHOLOGY

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

EDMONTON, ALBERTA

FALL, 1976

THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled The Influence of a Training Program in Communication Skills Upon the Verbal Interactions Between Coaches and Athletes submitted by Leslie Ann Carlston in partial fulfilment of the requirements for the degree of Master of Education.

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Date June, 1976

ABSTRACT

The purpose of this study was to determine the effects of a training program upon the communication patterns between a selected number of coaches and athletes. The study was a descriptive, qualitative inquiry.

Eight separate basketball practice environments provided the data for the study. Schools involved were three Edmonton high schools and one district county junior-senior high school. There were four women coaches involved in the study. Each had coached for at least one year and had university training in physical education.

The fifth practice of each coach was videotaped. Then, two coaches were randomly selected for training in communication skills. These skills included: active listening; descriptive feedback; paraphrasing; perception check; and description of feelings. The sixteenth practice of each coach was then videotaped.

Videotapes of practice environments were observed and analyzed using Hough's Observational System for Instructional Analysis, a method of analyzing interaction. Results were tabulated in matrices and analyzed by: comparing the total number of behaviors in each category with the total number of behaviors in each practice environment and to total behaviors in other categories; comparing the percentage of occurrence of each behavior to that of other behaviors; and by tabulating the ratios of indirect teacher talk to direct teacher talk, student talk to teacher talk, and silence to talk.

Results of the training program were not conclusive, as changes in verbal interactions occurred for all coaches. The training

program may have influenced the use of clarifying statements, coach's response to athlete initiated behaviors, and a shift towards indirect patterns of verbal influence. The existence of a positive atmosphere for all coaches was reflected in the results.

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CHAPTER ONE

INTRODUCTION

The area of teacher-student interaction has been increasingly researched (Flanders, 1970; Simon and Boyer, 1970; Adams and Biddle, 1970). Extensive attention has been given to both verbal and non-verbal communication. There has been, however, a paucity of research in the area of coach-athlete interaction. Tutko (1971), Vanck (1971), Pugh (1971) and Smith (1971) have called for an awareness of communication on the part of the coach. The Coaching Association of Canada, in response to a letter from this writer, indicated that there was little research conducted into the area of coach-athlete interaction in terms of what actually occurs in a gymnasium.

Examining the nature of communication in coaching was assumed to be important. There have been assumptions made regarding the most effective ways of communicating with an athlete, yet there has been little research dealing with what actually takes place between the coach and the athlete.

Amidon and Hough (1967) suggested that interaction analysis might provide a way for teachers to observe what happened in their classrooms:

> Interaction analysis is a technique for capturing quantitative and qualitative dimensions of teacher verbal behavior in the classroom, but as an observational system, it clearly does not measure all that occurs. What interaction analysis captures is the verbal behavior of teachers and pupils that is directly related to the social-emotional climate of the classroom (p. 2).

PURPOSE OF THE STUDY

It was the purpose of this study to determine the effects of a training program on the communication patterns between a selected number of coaches and athletes. The study has used a descriptive, qualitative inquiry rather than employing an experimental, quantitative design. Further to the general purpose of the study was the need to develop a training program to train observers and to set out basic rules of observation.

BACKGROUND AND SIGNIFICANCE OF THE STUDY

One widespread side effect of increasing technology and influence is a dramatic decrease in the amount and intensity of physical activity necessary for living. This conflicts with the strong evidence (Astrand and Rodahl, 1970) that some optimal amounts of various activities are required if the genetic potential of the individual is to be realized.

Historically, physical skills were necessary for survival and were passed from generation to generation. Added to these utilitarian values, Siedentrop (1974) suggested that ". . .participation in sport, game, and dance activities provides certain types of meaning for those who play and those who watch" (p. 23). Therefore, physical education has a personal significance.

As technology both raises the standard of living and provides increasing amounts of leisure time, the twin benefits of physical activity: 1) contributions to physical and functional development; and 2) psychological and social values of play and of recreation,

assume greater importance.

The significance of play is mentioned by Erikson (1963):

> The list of playful situations in a variety of human endeavors indicates the narrow area within which our ego can feel superior to the confinement of time and space and to the definitiveness of social reality--free from the compulsons of conscience and from impulsions of irrationality. Only within these limitations, then, can man feel at one with his ego; no wonder he feels 'only human' when he plays (p. 214).

Siedentrop (1972) defined physical education as ". . .any process that increases human abilities to play competitive and impressive motor activities" (p. 185).

Physical education in the Province of Alberta Curriculum Guide (1975) has as its objectives the development of bodily functions, the development of recreational skills for leisure time and the development of abilities in getting along with others.

Cratty (1967) discussed the importance of sociopsychological factors in sport. The feeling of belonging to and being needed by a group was cited by Steinhaus (1969) as being a reason why people participate in sports. The social aspect of sport and man's social striving indicate the importance of understanding the interaction between people, including coach and athlete.

In recent years, there has been an emphasis on improving coaching behaviors. Kneer (1974), Curry (1974), Jackson (1974), and Turner (1973) implored coaches to be flexible, creative, and empathic when dealing with athletes. However, these authors failed to mention how coaches could achieve these goals. Smith (1971), on the other hand, outlined specific methods to assist ". . .in motivating athletes and helping them to learn to control themselves under the heavy

stresses of competition. . . . Matters of technique and knowledge of sports per se are of great importance but are background to the human relations aspects of coaching" (p. 93).

ORGANIZATION OF THE STUDY

In Chapter 1 the author outlined the purposes of the study, presented relevant background, and discussed the significance of the study.

In Chapter 2, relevant literature in interaction analysis has been reviewed, as have selected communication references. The recording and observing of behavior, in addition to the use of videotape as a research tool, has been discussed.

Chapter 3 has dealt primarily with the design of the study, explaining the equipment used, the analysis process, how coaches were trained in communication skills, and the training of observers.

Results and discussions have been contained in Chapter 4.

Conclusions and suggestions have been dealt with in Chapter 5.

DELIMITATIONS OF THE STUDY

A number of delimitations existed:

1. A selected sample of coaches was used. There was no attempt to obtain a random sample of coaching behavior.
2. It was recognized that the measuring instrument used for this study did not include all the possible interactions between a coach and an athlete.

3. The communication training program was focused on six skills: active listening; paraphrasing; describing behaviors; describing feelings; checking perceptions; and providing feedback. Therefore, it was recognized that the communication skills were not all-inclusive.

LIMITATIONS OF THE STUDY

The focus of the study was behavior in the gymnasium. Although the development of a communication program in coaching would be applicable to many sports, this study concentrated on the coaching of high school girls' basketball.

In addition, only female coaches were observed. All of these women majored in physical education at university and coached for at least one year prior to this study.

CHAPTER TWO

A REVIEW OF RELEVANT LITERATURE

Introduction

Interaction refers to a relationship between people such that ". . .the behavior of one is stimulus to the behavior of the other" (Withall and Lewis, 1968, p. 682).

Most research in relationships deals with verbal communication (Simon and Boyer, 1970; Rosenshine, 1970). Simon and Boyer (1970) reviewed seventy-nine systems for observing interactions. Primarily, these systems are used for ". . .assisting teachers, counselors, or group members to gain insights about their behaviors as well as to provide a language for prescribing new behaviors for themselves and to help them to be able to determine if they have met their behavioral goals. . ." (Simon and Boyer, 1970, p. 27).

Review of Selected Systems of Interaction Analysis

Interaction analysis systems are methods for obtaining "observable, objective data. . ." (Simon and Boyer, 1970, Appendix 1) about what actually happens when people interact. In order to describe communication accurately, Simon and Boyer (1970) listed three criteria which an observation system must meet:

1. It must be descriptive, not evaluative.
2. It must deal with what can be categorized or measured.
3. It must deal with small bits of behavior rather than large concepts.

Flanders (1966) described what is required of an interaction system:

> A particular system for interaction analysis will usually include (a) a set of categories, each defined clearly, (b) a procedure for observation and a set of ground rules which governs the coding process, (c) steps for tabulating the data in order to arrange a display which aids in describing the original events, and (d) suggestions which can be followed in some of the more common applications (p. 29).

The 10-category Flanders System of Interaction Analysis (Flanders, 1965) used category change and a time unit for coding behaviors. Interaction between teacher and pupil was observed. Procedures for collecting data involved live observation and a matrix for displaying data. The FIAS focussed on the affective domain. Categories for the FIAS were:

I. Teacher Talk

  A. Indirect Influence

    1. accepts feelings

    2. praises or encourages

    3. accepts or uses ideas of student

    4. asks questions

  B. Direct Influence

    5. lecturing

    6. giving directions

    7. criticizing or justifying authority

II. Student Talk

    8. student talk-response

    9. student talk-initiation

    10. silence or confusion

Withall (Simon and Boyer, 1970; Amidon and Hough, 1967) developed a system called the Social--Emotional Climate Index. This system focused on the teacher along a teacher-centered-pupil-centered dimension. Category change was used as the coding unit. The affective domain was the focus of Withall's system. Categories are:

1. learner supportive statements or questions
2. acceptant or clarifying statements or questions
3. problem-structuring statements or questions
4. neutral statements
5. directive statements or questions
6. reproving, disapproving, or disparaging statements or questions
7. teacher-supportive statements or questions

Medley's Observation Schedule and Record (OScAR 4V) (Simon and Boyer, 1970) had dimensions for both teacher and student verbal behavior. Affective, cognitive, and procedural category dimensions were included in the OScAR system. Category change, speaker change, and two sets of behavior (interchanges and monologues) were used as coding units. OScAR categories are:

I. Statements
   A. Teacher statements
      1. affective
      2. substantive
      3. procedural
   B. Pupil statements
   C. Sequence
II. Interchanges

A. Substantive interchanges

B. Entries

1. pupil initiated
2. elaborating
3. divergent
4. convergent

C. Exits

1. supported
2. approved
3. criticized
4. neutrally rejected
5. accepted
6. not evaluated

D. Non-substantive interchanges

1. teacher-initiated
   a) positive
   b) negative
2. pupil-initiated
   a) positive
   b) negative

The 16-category Observational System for Instructional Analysis (OSIA) was developed by John Hough. "The OSIA is a system of classroom observation that has been built to more precisely describe the classroom behaviors that are associated with the facilitation of learning as they are implicitly described in commonly accepted principles of learning and instruction" (Amidon and Hough, 1967, p. 157). Coding units for the OSIA included category change and time units. The OSIA made use of Flanders' 10-category FIAS but went beyond it to include ". . .categories which discriminate between different kinds of silence such as silence during practice activity. . .and

silence while the teacher is giving a nonverbal demonstration" (Simon and Boyer, 1970, p. 9-10). This aspect and the inclusion of a category for skill clarification and acceptance was of interest in the present study. Focus was on the affective dimension. The interaction between teacher and student was observed. OSIA categories are:

Indirect Teacher Verbal Influence

1. affective clarification and acceptance
2. praise and reward
3. cognitive and skill clarification and acceptance
4. teacher questions
5. response to questions

Teacher Direct Influence

6. initiates information or opinion
7. corrective feedback
8. requests and commands
9. criticism and rejection

Student Verbal Behavior

10. elicited responses
11. emitted responses
12. student questions

Silence

13. directed practice or activity
14. silence and contemplation
15. demonstration

Nonfunctional Behavior

16. confusion and irrelevant behavior

Interaction Analysis in Physical Education

Anderson (1971) called for the development of descriptive--analytic research in teaching physical education. Through such research it would be possible to describe what actually took place in a gymnasium, to study teacher methodology, and to accumulate data concerning interactions.

Fishman and Anderson (1971), Dougherty (1970), Bookhout (1965), Barrett (1969), Robbins (1973), and Smith (1974) have used interaction analysis in studying a variety of physical education environments. These authors concluded that interaction analysis was a valuable tool in describing the teaching-learning process.

Kneer (1974) and Blank (1957) called for the establishment of effective interpersonal relations. They saw interaction analysis as a way to identify effective and ineffective teacher behaviors, and as a result, to improve teacher-student (coach-athlete) interaction. (see Appendix E).

Coach-Athlete Communication. There has been very little research conducted into the field of interaction analysis as applied to coach-athlete communication.

Tharp and Gallimore (1976) analyzed the teaching behavior of UCLA's head basketball coach, John Wooden. The 10-category system used in this study was specifically developed for athletic coaching and contained two categories, scold/reinstruct and hustle, which apply directly to the teaching of physical activities. The majority of Wooden's comments were instructions about what to do, how to do it, and encouragements.

Smith (1971) stated that ". . .it seems critical that the

coach-athlete relationship must build in more of the factors that operate in a friendship" (p. 93). The coach ". . .can continue to exert authority and controls where these are necessary, but he needs to learn to do so in more democratic and humane ways" (Smith, 1971, p. 94).

A number of teaching styles were identified by Mosston (1966) and are applicable to coaching:

--teaching by command

--teaching by task

--reciprocal teaching--the use of a partner

--the use of the small group

--the individual program

--guided discovery

--problem solving

--creativity

"Even a team effort is based on the cumulative appropriate small decisions and actions of each individual, and only when each individual is capable of making decisions can the team advance to a higher level of performance" (Mosston, 1966, p. 6).

Comparing and Contrasting Teaching and Coaching Situations

Vanek (1971) defined a coach as ". . .first of all an educator, stimulating the self-education of the athlete. It means he is a teacher with a background in education and a knowledge of psychology" (p. 55).

Tharp and Gallimore (1976) discussed UCLA's basketball coach, John Wooden, and his teaching techniques. Wooden was seen as being a

"coach-teacher" (p. 75).

Comparison. The following factors are seen by this writer as being comparable for physical education teachers and coaches:

1. They must have a knowledge of the principles of learning and the effective use of reinforcement, praise, punishment, and repetition.
2. They must deal effectively with the cognitive, behavioral, and affective dimensions of learning.
3. They must be able to communicate effectively with students and athletes in order to impart knowledge and skills.
4. They must be able to use modeling as a way of teaching skills and behaviors.
5. They must use effective questioning techniques in order to encourage problem-solving by students and athletes.
6. They must arrange environmental conditions to stimulate students and athletes.
7. They must have a background knowledge in their teaching or coaching area.
8. They must be able to create a warm, accepting, and understanding environment where it is safe for athletes and students to experiment with alternative ways of learning.
9. They must be able to organize situations so that students and athletes can transfer newly acquired skills and information to similar situations.
10. They must possess a knowledge of group processes and of

how to work effectively with groups.

11. They must be able to accommodate individual needs in learning situations.

Contrast. In a conversation with Smith (1976), several differences between physical education teachers and coaches were discussed and are included in the following list:

1. Differences in goal clarity. Athletes are generally in greater agreement as to goals or objectives of participation even though their motives may vary greatly. Commitment to recognized goals is often considerably greater than is the case with students who may be attending through compulsion.
2. Athletes will usually display more persistent and higher levels of motivation due to personal commitment and high levels of attractiveness of short range, and sometimes long range, goals.
3. Differences in the total time spent with learners. Few junior high or senior high students spend as much time in any class as they will in practice, travel, and league or exhibition games as a member of a school team. This extended period of time coupled with a more intense relationship growing out of shared commitment of student-athlete and coach results in close personal involvement than is usually the case in classrooms.
4. Coaches seldom handle more than 15-18 athletes by themselves. Even at that there may be an assistant. A team of 32 boys

in football, for example, may have four coaches. This factor also increases time for individual and small attention per unit of time available.

5. The extended, close relationship, with a relatively small group of athletes often results in a more informal atmosphere, much like an adult work group. The authority of the coach remains in force but is often exerted very subtly as is often the case with a manager. In large classes is is much more difficult to maintain control with relaxed, indirect methods.

The common factors that exist in teaching and coaching mean that concepts, instruments, and methods of studying teaching can be used as starting points in analyzing coaching behavior, so long as the differences are kept in mind.

Review of Selected Communication References

Definition of Communication. The term communication is familiar to most people. Generally, it is taken to mean an exchange of dialogue between two or more people. Communication may be defined as ". . .a relationship between people where the behavior of one is stimulus to the behavior of the other" (Withall and Lewis, 1968, p. 682).

In describing teachers and children, Ginott (1972) discussed the concept of "congruent communication" which he defined as "Communication that is harmonious, authentic; where words fit feelings" (p. 67).

Communication Models. There are a number of ways of conceptualizing communication.

Satir (1972) looked at what each person brings with him into the communication process. She presented the elements and the process of communication as:

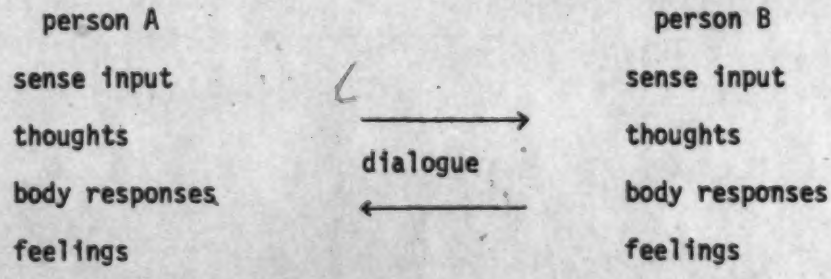


Figure 1

Satir's Communication Model

(From Satir, Virgina. Peoplemaking. Palo Alto, Calif.: Science and Behavior Books, Inc., 1972, p. 32).

The emphasis is upon awareness of how a person's physical and mental states are used in communication.

Thomas Gordon (1970) presented communication as a process where one person needs something and expresses this need. Diagrammatically, the process is:

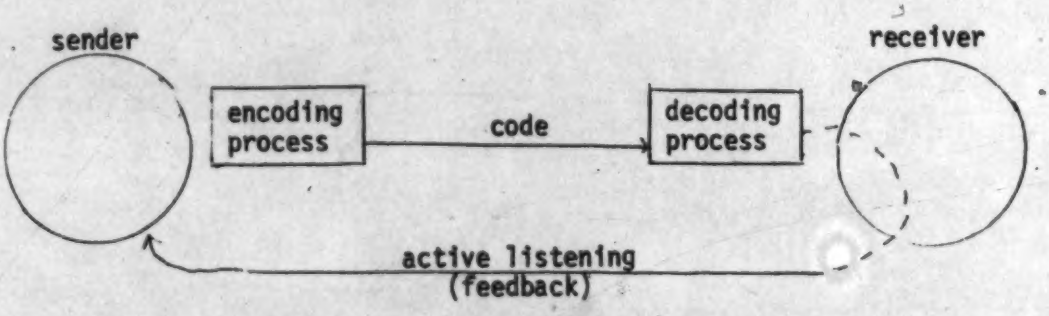


Figure 2

Gordon's Communication Model

(From Gordon, Thomas, P.E.T.: Parent Effectiveness Training. New York: Peter H. Wyden, Inc., 1970, p. 52.

The message is expressed, interpreted by the receiver, and then checked out by the receiver with the sender.

Clark, Erway, and Beltzer (1971) used a model similar to that of Gordon (1970) to explain communication in the classroom. These authors referred to their model as a systems model:

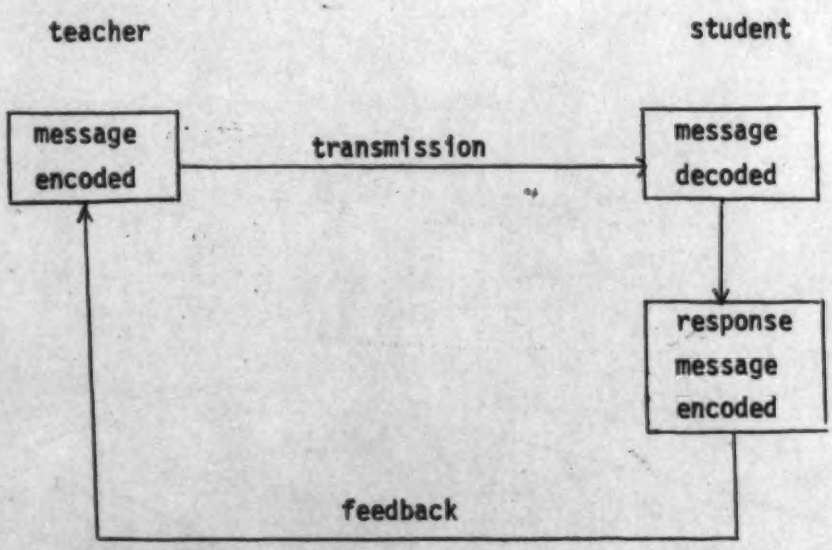


Figure 3

Clark, Erway, and Beltzer: A Model of Communication

(From Clark, Margaret, Erway, Ella A., and Beltzer, L. The Learning Encounter: The Classroom as a Communication Workshop. New York: Random House, 1971, p. 7).

The authors pointed out that the system is "non-linear". That is, it is being affected by the perceptions and messages of other people who are present while the above interaction takes place:

Gorman (1969) presented a communication model illustrating group effects. How a person perceives himself, the person he is sending the message to, and the situation he finds himself in will affect the communication process. How the person receiving the message perceives himself, the other person, and the situation will affect his response.

Process and Content. Gorman (1969) stated that if a teacher is going to work with groups he should know what they are about. By evaluating processes within the classroom, through the use of reaction sheets, sociometry devices, self-evaluation scales, and anecdotal records, Gorman suggested that it would be possible to determine if classroom objectives were being achieved and to improve the process if necessary.

Carkhuff (1969b) emphasized the importance of the relationship between a teacher and a student. This would imply that attention to interpersonal relationships would produce positive effects in the classroom or gymnasium.

What evidence is there to suggest that process must be dealt with prior to and along with subject matter and/or motor skills? It is possible to use videotape recording in a gymnasium to determine what occurs. Then, a descriptive analysis of the lesson may be used to examine communication patterns and skills which help or hinder the coaching process.

Recording and Observing Behavior--A Review of Selected Articles

Withall (1956; 1960) identified some of the major studies in observing and recording classroom behavior and described his own system of measuring classroom interactions.

Biddle (1967) and Bealing (1973) described different approaches to conducting research in the classroom. They pointed out various difficulties in obtaining and recording data. These authors concluded that without the establishment of an adequate methodology and theoretical basis in research it would be difficult to make comparisons among various studies.

The problems of observer reliability and training have been described by Flanders (1966, p. 9) "The problem is twofold: first, converting men into machines; and second, keeping them in that condition while they are observing". A description of training procedures and the estimation of reliability between observers was also set out by Flanders (1966).

Use of Videotape Recording in Obtaining Data

Live observer recording, audiotapes, and videotapes may be used to record classroom behavior. Bealing (1973) and Biddle (1967) called for the use of videotape recording since it provided a relatively permanent visual and audio record of what occurred in a classroom. In addition, observers could check out the reliability of their encoding by viewing the same behavior segment on different occasions.

Adams and Biddle (1970) directed their attention to the nature of classroom interaction. These authors suggested that the value of

videotape recording is that it shows what actually happens rather than seeing interaction from a particular observer's viewpoint.

Videotaping as a research tool has been used by Smith (1974) and Robbins (1973) in studies related to physical education.

CHAPTER THREE

DESIGN OF THE STUDY

Background

Data for the study were obtained from eight separate basketball practice environments in four different gymnasiums. Basketball practices observed and recorded were, in each case, number five and number sixteen. This was partly an arbitrary choice. The rationale behind the selection was that the fifth practice allowed the coach time to work with her athletes following team selection and the sixteenth practice allowed for taping later in the season when interaction patterns might have changed.

The schools involved were three Edmonton high schools and one district county junior-senior high school.

Equipment

Date had been collected by using videotape recording. Equipment included a Sony camera and recorder, as well as a microphone with extension cord and neck clip. The microphone hung around the coach's neck and was attached to the recorder by twenty-five feet of cord. The equipment was assembled on one side of the gymnasium at mid-court. While the microphone inhibited the coach to some degree, the extension cord allowed for a reasonable degree of mobility in conducting the practice and any difficulties it produced were experienced by all four coaches.

One-half inch videotape was used. A playback monitor (Sony

model 110-UA) was on hand to allow the recorder to check on the quality of video and audio transmission.

Subjects

Four high school coaches were chosen from the Edmonton Public School Board, the Edmonton Separate School Board, and the County of Strathcona, which borders Edmonton on the south and the east. A list of coaches in the area was obtained from each of the three school boards. A number of coaches were interviewed and asked if they were willing to participate in the study. Four coaches volunteered and became subjects for the study. Control and experimental selections were randomly made. The coaches were women between the ages of twenty-two and thirty-one. All coached at the high school level and had at least one year of coaching and teaching experience. None of the coaches had any prior training in communication skills. There were no assistant coaches involved in working with any of the teams.

Basketball practice sessions conducted by a fifth coach were recorded under similar conditions and tapes were used for observer training. This woman met all of the conditions set down for the experimental subjects.

Data Collection

Data for the study were collected in five different dymnasiums using the same equipment and procedures. One hour of the fifth and sixteenth practices of each coach was taped. The task of the person recording each practice was to ensure that both the video and audio recording was clear. The camera was focused on the coach throughout each practice.

Observer Contamination

Use of the video equipment was explained to coaches and athletes. After the initial few minutes of recording, the athletes appeared to become involved in their activities and ignored the equipment. Coaches seemed to be aware of the microphone for a few minutes. Later, coaches indicated to the writer that they became accustomed to the microphone and paid little attention to it.

Training Coaches in Communication Skills

Two of the four coaches involved in the study were randomly selected to receive training in communication skills following the recording of the fifth practice.

The writer met with both of the selected coaches and gave each of them a training manual (Appendix A) which was discussed at the first session.

Gordon's (1974) model of communication was selected for this study since it has been extensively used with teacher groups and it is easily demonstrated.

A total of five sessions (a total of 10 hours) was required for the coaches to learn and practice each of the communication skills involved in the study. Materials used for training are included in Appendix A. A demonstration of each of the communication skills was conducted by the trainer.

Discussion of both manual materials and demonstrations occurred during training sessions. Trainees were given the opportunity to practice the communication skills during sessions.

Observer Training

Analysis of the data, using Hough's OSIA, was carried out by the writer and a senior student with physical education background.

Prior to the viewing of the videotapes, a program was undertaken to obtain inter-observer reliability. While these procedures relate specifically to Flanders' 10-category FIAS, they were deemed to be compatible with the 16-category OSIA used in this study as Hough (1967) stated that "A conscious attempt has been made to organize the sixteen categories of the Observational System for Instructional Analysis so as to parallel. . . Flanders' system of interactional analysis" (p. 150). The training procedure used in this study was developed by Smith (1974) in a study concerned with interaction analysis in a swimming instruction environment:

a) the OSIA categories were memorized and related to Hough's ground rules and descriptions (1967, pp. 151-154).

b) transcripts of pupil-teacher interactions from Robbins (1973, pp. 181-188) were categorized. Each observer carried out this step independently.

c) following initial training, a videotape of a fifth coach's practice was viewed. At this stage, both independent and cooperative ratings were done by observers. Discussion between observers allowed for resolving any discrepancies.

d) intra-observer reliability was necessary for the study. Flanders (1967) recommended the use of Scott's coefficient and this recommendation was used in the present study. Observers viewed and rated the same segment of videotape on two occasions four hours apart or on successive days.

Observer 1 achieved .858 reliability, while Observer 2 achieved .8527 reliability.

e) finally, interobserver reliability was required. This was done by requiring both observers to analyze the same ten-minute segment of tape. Observers worked independently during this phase of the training. Interobserver reliability was .866 on the first analysis of the tape and .855 on the second analysis.

The results of the training procedure was shown in Appendix C.

Procedure for Categorizing Coach-Athlete Interaction

This study used Hough's 16-category OSIA (1967) for analyzing interaction between coach and athlete in eight separate basketball environments.

The categories used in Hough's system are:

Indirect Teacher Verbal Influence

1. Acceptance and clarification of feelings
2. Praise and reward
3. Cognitive and skill clarification and acceptance
4. Teacher questions
5. Response to questions

Direct Teacher Influence

6. Initiates information or opinion
7. Corrective feedback
8. Requests and commands
9. Criticism and rejection

Student Verbal Behavior

10. Elicited responses
11. Emitted responses

12. Student questions

Silence

13. Directed practice or activity

14. Silence and contemplation

15. Demonstration

Nonfunctional Behavior

16. Confusion and irrelevant behavior

See Appendix B for a description of each of the categories.

The observers classified the events which took place in the practices by observing the following ground rules (Hough, 1967, pp. 153-154):

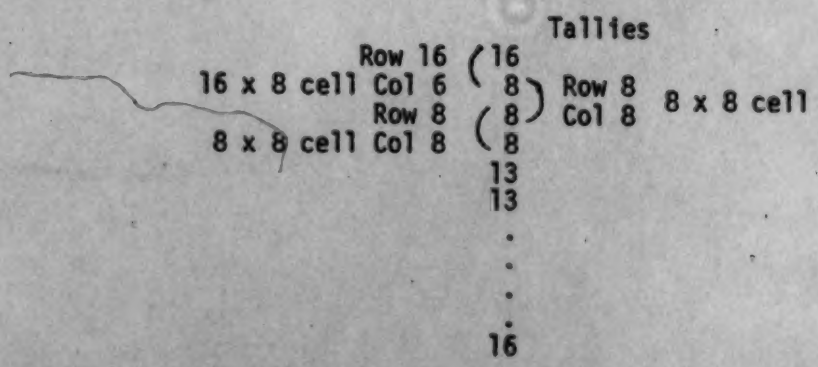
1. numbers representing the categories were recorded in three-second intervals. If there was more than one category taking place within the interval, then all categories were recorded.
2. student talk followed by student talk was recorded by using category 13 where one student stopped talking and another began.
3. when it seemed that two or more categories might be applicable, the observers used the category numerically furthest from category 6.
4. if there was a shift in teacher influence from direct to indirect, or vice versa, the observers did not shift to the opposite area unless the shift was clearly indicated. This rule takes precedence over rule three.
5. the observers did not try to second-guess the intent of the teacher, but recorded the categories of behavior, as they perceived the effects upon the students.

Recording and Illustrating Information Using the OSIA

The observers viewed videotaped records of eight basketball practice environments. Observers were seated in front of video monitors and recorded appropriate category numbers as each behavior occurred. The frequency of tabulation was approximately one tally every three seconds or twenty tallies per minute. If more than one category of behavior was displayed in a three-second interval, then the appropriate category number was recorded for each behavior.

In situations where there was a shift in practice activity, a note describing the change was made. On completion of an observation period, the columns of category numbers were arranged in a matrix of 16 rows by 16 columns. Each observation segment arbitrarily begins and ends with category number 16.

Matrices. Category numbers are paired so that each number, with the exception of the first and the last, is used twice. In each pair, the first number indicates the row; the second number indicates the column.



A sample matrix (Figure 4) illustrates the display of tallies. Rows and columns are equal. The percentage of occurrence of each category is included in the matrix under column totals.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T
1	1	1															2
2		3	1	5		1		1			1						12
3		2	13	2		3		2			2						24
4				24						7	2			5			38
5				1	9			1					1				12
6	1			2		60						1					55
7				1			4	1		1							7
8				1				11				1	1	1		1	16
9																	0
10		5	4				3			21							33
11			5							1	18		2				26
12			1		3							9					13
13				1							2	2	17				22
14		1		1						3	1			10			16
15																	0
16						1							1			2	4
T	2	12	24	38	12	65	7	16	0	33	26	13	22	16	0	4	296
%	0.7	4.1	8.2	13	4.1	22	2.4	5.6	0.0	11	8.9	4.5	7.6	5.6	0.0	1.4	100

Figure 4

An Interaction Matrix

(from Amidon, E., and Hough, J. Interaction Analysis: Theory, Research, and Applications. Reading, Mass.: Addison-Wesley Publishing Co., 1967, p. 155).

In addition, three ratios are displayed under the matrix. The I/D ratio analyzes the use of teacher indirect and direct verbal behavior. To determine the ratio the sum of the indirect column totals (columns 1 to 5) is divided by the sum of the direct column totals (columns 6 to 9). The ratio of student talk to teacher talk, S/T, and the ratio of silence to talk, Si/Ta, are computed in the same way. Extended use of any one category is indicated in cells crossed by

the dotted line. A matrix was completed for each videotaped lesson. The actual interaction between coaches and athletes was displayed in this manner.

Both observers viewed the one-half inch videotapes on a 23-inch Electrohome model ETV-6 monitor attached to a Sony videotape deck. Behaviors were recorded on an OSIA Tally Form (Appendix B). If the observers disagreed on a category, then the tape was stopped, rewound, and played again. This procedure continued until agreement was reached.

Once the data was recorded, it was transferred to IBM cards for analysis using a program developed by Burnett, Flathman, and Westrom of the Division of Educational Research Services.

Research Questions

The primary concern of this study was to determine if training in communication skills would produce a change in patterns of interaction between a coach and her athletes.

What evidence is there from an analysis of OSIA matrices to indicate a change in communication patterns after training in communication skills? Specifically, will the use of active listening, paraphrasing, and perception check skills be reflected in an increase in the occurrence of category 1, 3, 5, 11 and 12 statements from Practice 5 to Practice 16? Will evidence reflect an increase in the number of category 3 and 7 statements as a result of the use of descriptive feedback skills?

CHAPTER FOUR

RESULTS AND CONCLUSIONS

OVERVIEW

This study involved the videotaping of eight separate basketball practice environments, involving four different coaches. Practice five and practice sixteen of each coach was videotaped. Two of the coaches underwent a training program in communication skills prior to the taping of the sixteenth practice. Data were analyzed to determine whether or not there had been any change in verbal interaction as a result of the training program.

In this chapter, results have been reported and evidence, or lack of evidence, indicating a change in communication patterns from the Hough Observational System for Instructional Analysis Data and from videotape observations is presented. Individual OSIA matrices can be found in Appendix D.

RESULTS

Teacher Flexibility

Flanders (Amidon and Hough, 1967) stated that ". . . there are times when direct influence is most appropriate and other times when indirect influence is most appropriate" (p. 115). An effective teacher (coach) adapts his influence pattern as the situation requires.

Teacher flexibility has been defined as ". . . a measure of the change a teacher makes in his verbal influence from one activity

period to another" (Flanders, 1965, p. 15). By measuring the ratio of indirect talk to direct talk, it is possible to determine the flexibility of a coach's behavior. The shift in indirect talk to direct talk (ID ratio) from Practice 5 to Practice 16 has been presented in Table 1. For coach 1, in Practice 5, the ID ratio was 0.65 indicating 35 per cent fewer indirect statements than direct statements, and it rose to 1.13 in Practice 16 showing 13 per cent more indirect than direct statements. The ID ratio for: coach 2 rose from 0.33 to 1.06; coach 3 from 0.35 to 1.12; and, coach 4 from 0.33 to 0.80. The use of more indirect statements than direct statements has been illustrated by these shifts.

TABLE 1

THE RATIO OF INDIRECT TALK TO DIRECT TALK BY CONTROL COACHES (1 AND 2), AND EXPERIMENTAL COACHES (3 AND 4) IN PRACTICE 5 AND PRACTICE 16

Practice	Coach			
	1	2	3	4
5	0.65	0.33	0.35	0.33
16	1.13	1.06	1.12	0.80

An examination of results from tally sheets showed that coach 2, in Practice 5, made nineteen consecutive category 6 statements (information or opinion), while Practice 16 included a total of thirteen consecutive category 6 statements. Coach 4, in Practice 5, made nine consecutive category 8 statements (requests and commands) when setting up a drill. In Practice 16, coach 4 used six consecutive category 8 statements.

Individual OSIA matrices for coaches 3 and 4, Practice 5, were combined and have been tabulated in Table 2. By examining row 13, it was possible to determine how the coaches responded to directed activity. Row 13 had a total of 291 tallies. Of these, 128 (43.99 per cent) were found in the 13 x 13 cell (steady state) which indicated extended practice by the athletes. The frequency of other behaviors following directed practice was: corrective feedback, 51 instances (17.53 per cent); requests and commands, 48 cases (16.49 per cent); and praise and reward, 22 cases (7.56 per cent).

The combination of individual OSIA matrices for coaches 3 and 4, Practice 16, has been tabulated in Table 3. A total of 481 segments of directed practice activity were tallied. Extended practice accounted for 242 of these tallies; clarification and acceptance for 78; requests and commands for 47; and praise and reward for 33.

The individual OSIA matrices for coaches 1 and 2, Practice 5 were combined in Table 4. An examination of row 13 revealed a total of 269 tallies. Extended practice accounted for 103 tallies; requests and commands totalled 55 tallies; corrective feedback accounted for 40 tallies; and, praise and reward tallied 20 cases.

Separate OSIA matrices for coaches 1 and 2, Practice 16, were

TABLE 2

A COMBINATION OF INDIVIDUAL INTERACTION ANALYSIS MATRICES FOR EXPERIMENTAL COACHES (3 AND 4), PRACTICE 5

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T
1	0																0
2		4	4				11					19					40
3		4	4		1	12	3	7			4	3	19	1			58
4			2	0		1				2	2		2	1		1	11
5			2	1	8			5			4	5	3				29
6			3	2		98	2	10		0	3	3	14	4		10	149
7		2	5			2	38	5	1		8	2	40	1	1	1	106
8		8	3	3		9	4	53				3	58			5	146
9						1	1		1				3				6
10			1		1					1							3
11			17	1		2	4				5						29
12			1	19								2				1	23
13		22	14	1		12	51	48	4		2	2	128			7	291
14			2			4		1						0			7
15						1									0		1
16			1	2		6	2	6			1	3	5			14	40
T	0	40	58	11	29	149	106	146	6	3	29	23	291	7	1	40	939
%	0.0	4.5	6.3	1.2	3.3	15.9	11.3	15.5	0.8	0.5	3.3	2.4	30.9	0.9	0.2	4.5	100.0

Indirect Talk/Direct Talk $\frac{138}{407}$ = (0.34) Student Talk/Teacher Talk $\frac{55}{545}$ = (0.10)

Silence/Talk $\frac{299}{600}$ = (0.50)

TABLE 3

A COMBINATION OF INDIVIDUAL INTERACTION ANALYSIS MATRICES FOR EXPERIMENTAL COACHES (3 AND 4), PRACTICE 16

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T
1	0												1				1
2		3	8				1	1			1		29				43
3		5	26	1		3	1	7			2	3	81	1		2	132
4			1	0		1		1		4	5	2	2			1	17
5			1		1	2		1					8			1	14
6					2	21		2			1	1	29				54
7		1	2			1	11	1			1		28				45
8				1		7	2	45			4	2	53	2		2	118
9									0								0
10			2							0	1					1	4
11	1	1	13	3				3			1		3				25
12				5	8						1						14
13		33	78	5	1	19	29	47			7	5	242			10	481
14			1					2						0			3
15															0		0
16				1			1	8			1	1	5			11	28
T	1	43	132	17	14	54	45	118	0	4	25	14	481	3	0	28	979
%	0.1	4.4	13.3	1.7	1.4	5.5	4.6	12.6	0.0	0.4	2.6	1.4	4.7	0.3	0	2.9	100.0

Indirect Talk/Direct Talk $\frac{207}{217}$ = (0.95)

Student Talk/Teacher Talk $\frac{43}{424}$ = (0.10)

Silence/Talk $\frac{484}{467}$ = (1.04)

TABLE 4

A COMBINATION OF INDIVIDUAL INTERACTION ANALYSIS MATRICES FOR CONTROL COACHES (1 AND 2), PRACTICE 5

	1	2	3	4	5	6	7	8	9	10	11.	12	13	14	15	16	T
1	0																0
2			5				2	5	1				11			1	25
3		2	13			6	2	9			5	5	27			2	71
4			1	1	1	1		2		2			6	1			15
5				1	18	4	3			1	2	7	8	3		2	48
6			1	1		86		3	1		11	3	9	5		5	125
7		1	1	1			33	13			7	3	27	3			89
8		2	3	1		6	6	33			2	4	68	1		4	130
9				1				1	0			1	1				4
10						1	2			1							4
11			25	1		4	1	1	1		4						37
12			1	1	26							1				1	30
13		20	19	5	1	8	40	55	1	1	6	5	103			5	269
14			1		2	3	3	2						1	0		12
15														1	0		1
16			1	2		6		3				1	7			1	27
T	0	25	71	15	48	125	89	130	4	4	37	30	269	12	1	27	887
%	0	2.82	8.0	1.7	5.4	14.1	1.0	14.7	0.5	0.5	4.2	3.4	30.3	1.4	.1	3.0	100.0

Indirect Talk/Direct Talk $\frac{159}{344}$ = (0.46) Student Talk/Teacher Talk $\frac{71}{503}$ = (0.14)

Silence/Talk $\frac{282}{574}$ = (0.49)

combined and have been presented in Table 5. There were 398 instances of directed activity, 187 of which were extended practice. The frequency of other behaviors following directed activity was: clarification and acceptance of skills or cognitive activities, 87 cases; requests and commands, 39 cases; and, praise and reward, 25 cases.

An examination of Row 11, Table 2, in each interaction analysis matrix showed how coaches responded to the emitted responses of athletes. For coaches 3 and 4, in Practice 5, the cell frequencies in row 11, showed a total of 29 emitted responses. Of these, 17 (58.6 per cent) were followed by category 3 statements (teacher acceptance). Extended athlete-initiated responses occurred in 5 cases (17.2 per cent) and in 4 instances, corrective feedback followed athlete-emitted responses. In Practice 16 (Table 3), there were a total of 25 category 11 behaviors. Teacher acceptance followed in 13 instances (52 per cent); directed activity followed on 3 occasions (12 per cent). Teacher questions followed in 3 cases (12 per cent).

Areas of the OSIA used for matrix analysis have been illustrated in Table 6. An examination of Area E (instances of teacher talk following student talk) in Table 2 showed a total of 18 indirect teacher responses compared to 6 direct teacher responses. An analysis of Area E in Table 3 showed 18 indirect teacher behaviors following athlete-initiated responses and 6 direct teacher responses. Area E, Table 4, showed a total of 26 indirect teacher behaviors, compared with 7 direct teacher behaviors. Table 5, Area E, contained 15 indirect teacher behaviors and 3 direct teacher behaviors.

It is possible that as practices progressed, coaches gave

TABLE 5

A COMBINATION OF INDIVIDUAL INTERACTION ANALYSIS MATRICES FOR CONTROL COACHES (1 AND 2), PRACTICE 16

	1	2	3	4	5	6	7	8	9	10	11.	12	13	14	15	16	T
1											1						1
2		2	5			1	2	6					23			2	42
3		10	21	1		2	1	21	1	1	2	2	69			2	133
4			1	0	1					1	1	2	3	3		1	13.
5				1	5			1			3	2	12				24
6				1		19		4			3	1	12	2		2	45
7				1			9	1			2		23				37
8		4	4	1		4	2	34	2			4	54			1	110
9									0		1		3				4
10			2							0							2
11	1	1	11	1	1	1		1	1		2		3				21
12				2	17												19
13		25	87	5		14	22	39			4	8	187			7	398
14			1			1		1					2	0			5
15															0		0
16						2	1	2			2		8			12	29
T	1	42	133	13	24	45	37	110	4	2	21	19	398	5	0	29	883
%	0.1	4.8	15.1	1.3	2.7	5.1	4.2	12.5	0.5	0.2	2.4	2.2	45.	.6	0.0	3.3	100.0

Indirect Talk/Direct Talk $\frac{213}{196}$ = (1.09) Student Talk/Teacher Talk $\frac{42}{409}$ = (0.10)

Silence/Talk $\frac{403}{451}$ = (0.89)

TABLE 6

AREAS OF THE OBSERVATIONAL SYSTEM FOR INSTRUCTIONAL ANALYSIS MATRIX USED FOR MATRIX ANALYSIS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T
1																	
2		A															
3																	
4																	
5											C			F			
6																	
7								B									
8																	
9																	
10																	
11					E						D						
12																	
13																	
14					H								G				
15																	
16																	
T																	
%																	

athletes more opportunity to practice skills and spent more time clarifying and developing these skills. As a result, an increase in indirect teacher behaviors occurred.

Another reason for the increase in the occurrence of indirect statements by all coaches may be that as the season progressed, athletes became more familiar with drills and procedures leaving the coach with the opportunity to clarify and correct skills, rather than providing information and directions about the mechanics of drills and scrimmages.

These results appear to be contrary to Flanders' (1965) statement that when goals are shared, teacher influence is more direct; and, when goals are ambiguous teacher behavior is more indirect. "Goal clarity is a condition where the student knows his ultimate goal and the steps necessary for achieving it; . . ." (Amidon and Flanders, 1963, p. 55). It might be assumed that athletes on a team are clear about their goals and share them, yet the results of an analysis of the observed practices showed an increase in indirect verbalizations for all coaches. On the other hand, athletes may perceive that their goal is to win games, yet they may not be sure as to how to go about this. Therefore, ambiguity may exist thus explaining the occurrence of indirect statements.

The frequency of behaviors following directed activity and athlete-emitted responses showed flexibility in teaching patterns by all coaches.

Summary. Examination of rows 11 and 13, and Area E of the OSIA matrices provided an analysis of how coaches responded to

athlete-initiated responses and to directed activity. The results indicated an increase in the occurrence of indirect teacher (coach) influence from Practice 5 to Practice 16, for all coaches.

Presence of Warmth, Acceptance, and Empathy

The presence of warmth, acceptance, and empathy has been related to the communication skills of active listening, paraphrasing, and perception check, as defined in this study.

> The direct teachers lack those social skills of communication that are involved in accepting, clarifying, and making use of the ideas and feelings of students. The indirect teachers have these skills, even though they are not in use most of the time (Flanders, 1965, p. 116).

A comparison of the number of category 3 statements for all coaches in Practice 5 and Practice 16 has been presented in Table 7.

TABLE 7

COMPARISON OF FREQUENCY AND PERCENTAGE OF CATEGORY 3 STATEMENTS, COGNITIVE AND SKILL CLARIFICATION AND ACCEPTANCE

Practice		CONTROL Coach 1	2	EXPERIMENTAL Coach 3	4
5	Frequency	37	34	32	26
	%	9.5	6.9	6.2	6.2
16	Frequency	57	76	87	45
	%	13.6	16.4	16.6	9.9

Results showed an increase in the number of statements clarifying and accepting skill and cognitive activities for all coaches.

The contributions that athletes make to a practice have been calculated according to the pupil initiation response (PIR). The pupil initiation response for Practice 5, coaches 3 and 4, was 52.7, while for Practice 16, the PIR was 58. The PIR for Practice 5, coaches 1 and 2, was 52.1, and for Practice 16, the PIR was 50. Flanders (1970) stated that the average PIR was 34. Therefore, ratios for all coaches were above the average for athlete-emitted responses. The PIR increased 5.3 from Practice 5 to Practice 16 for coaches 3 and 4; and decreased 2.1 for coaches 1 and 2.

The PIR was determined by multiplying the sum of category 11 responses by 100 and then dividing the total by the total sum of athlete talk (categories 10, 11, and 12).

Since there was an increase in the number of category 3 statements for all coaches, it is possible that coaches in the study possessed skills related to warmth, acceptance, and empathy without training.

PIR results indicated that athletes felt safe enough to contribute to practices. It may be that training in communication skills influenced practice environments of coaches 3 and 4 in such a way as to result in an increase in athlete initiated responses.

Summary. An examination of Table 7 and the PIR of Practices 5 and 16 for coaches 1, 2, 3, and 4 reflected the existence of a warm, accepting atmosphere for all coaches. PIR results indicated

that athletes contributed more in Practice 16, coaches 3 and 4, then in Practice 16, coaches 1 and 2.

Use of Clarification, Praise and Reward, and Corrective Feedback

A comparison of OSIA percentages of category 2 (praise and reward), category 3 (clarification and acceptance of skill and cognitive activities), and category 7 (corrective feedback) statements has been tabulated in Table 8.

Results indicated that the percentage of category 3 behaviors increased for all coaches. Corrective feedback statements decreased significantly for coaches 2 and 3, decreased by 1.8 per cent for coach 4, and increased by 1.2 per cent for coach 1. Category 2 statements increased for coaches 1, 2, and 4, however, decreased for coach 3 by one-half.

Observation of the videotapes indicated a difference in the specificity of corrective feedback.

Coach 4; Practice 5: Don't wait. Step into it.

Coach 4; Practice 16: I think. . .it's the ball, too flat. Try to get more arc on the ball. Hit the backboard a little higher.

Videotapes showed instances where category 2 was followed by category 7.

Coach 3: That's much better. Good. Now rather than turning to the side, you have to work on facing the basket the whole time you're shooting.

Praise and reward statements by coach 3 may have decreased from Practice 5 to Practice 16 as a result of the amount of time out

TABLE 8

COMPARISON OF PERCENTAGES OF CATEGORY 2 (PRAISE AND REWARD), CATEGORY 3 (COGNITIVE AND SKILL CLARIFICATION AND ACCEPTANCE), AND CATEGORY 7 (CORRECTIVE FEEDBACK) BEHAVIORS IN PRACTICE ENVIRONMENTS

	Practice	CONTROL Coach 1	2	EXPERIMENTAL 3	4
Category 2	5	2.0	3.4	5.0	3.3
Praise and Reward	16	4.5	5.0	2.5	6.6
Category 3	5	9.5	6.9	6.2	6.2
Cognitive and Skill Clarification and Acceptance	16	13.6	16.4	16.6	9.9
Category 7	5	3.6	15.1	13.3	8.8
Corrective Feedback	16	4.8	3.7	5.4	7.0

of practices that coach 3 spent with her players. Her interest in the other activities of players may have been reinforcing to players and carried over into practice.

It might be expected that early in the season coaches would tend to give praise and reward for trying, while later in the season the focus would be on correcting techniques. The evidence in Table 8 was contrary to this expectation. It may be that athletes required praise to maintain motivation.

Summary. Results indicated that in most cases, the use of praise and reward statements increased while corrective feedback verbalizations decreased. Cognitive and skill clarification and acceptance statements increased in all cases. It is not possible to determine whether or not the training program influenced the use of positive reaction and corrective feedback by coaches.

Percentage of Teacher Talk, Student Talk, Silence and/or Confusion

> Monopolizing talking time is one way to dominate and to express one's will . . ., it is not surprising to discover that the teacher talks more than one half the elapsed coding time in all visits (Flanders, 1970, p. 100).

A comparison of percentages of teacher talk, student talk, and silence and/or confusion for Practices 5 and 16, coaches 1 and 2; coaches 3 and 4 has been presented in Table 9. Talking time for coaches 1 and 2 decreased from Practice 5 to Practice 16 by 4.9 per cent. For coaches 3 and 4, talking time decreased from Practice 5 to Practice 16 by 15.4 per cent.

Silence and/or confusion increased from Practice 5 to Practice 16 for coaches 1 and 2 by 11.2 per cent, and for coaches 3

TABLE 9

A COMPARISON OF PERCENTAGES OF TEACHER TALK, STUDENT TALK, SILENCE AND/OR CONFUSION FOR PRACTICES 5 AND 16, CONTROL COACHES (1 AND 2), EXPERIMENTAL COACHES (3 AND 4)

Practice		Coach 1	Coach 2	Coach 3	Coach 4
5	Teacher Talk	51.1		58.3	
	Student Talk	11.1		5.6	
	Silence and/or Confusion	37.8		36.1	
16	Teacher Talk	46.2		42.9	
	Student Talk	4.8		3.6	
	Silence and/or Confusion	49.0		51.5	

and 4 by 15.4 per cent.

Student talk decreased from Practice 5 to Practice 16 for coaches 1 and 2 by 6.3 per cent, and for coaches 3 and 4 by 2.0 per cent.

Coaches 3 and 4 displayed the greatest decrease in percentage of teacher talk. This may indicate less coach domination of practices by coaches 3 and 4.

The increase in silence and/or confusion may be accounted for by increase in the amount of time devoted to directed activity.

It is possible that athletes felt more comfortable in coach 3's and coach 4's practices, and as a result consistently contributed to practices, although the percentage was relatively small. The general decrease in the percentage student talk might be attributed to a move towards more activity and less verbalization.

Summary. As sessions progressed, evidence indicated less coach domination.

Comparison of OSIA Frequencies and Percentages

Frequencies and percentages of interaction for coaches 3 and 4 based on the OSIA have been displayed in Table 10.

In two separate practices of coach 3, the occurrences of categories 1, 4, 9, 10, 11, 12, 14, 15, and 16 (nine out of sixteen categories) were within 1 per cent of each other. Categories 2 and 5 were within 3 per cent of each other and the occurrence of category 8 was within 3.5 per cent.

Between Practices 5 and 16, coach 4, the occurrences of categories 1, 4, 9, 10, 11, 14, 15, and 16 were within 1 per cent of

TABLE 10

COMPARISON OF OBSERVATIONAL SYSTEM FOR INSTRUCTIONAL ANALYSIS FREQUENCIES AND PERCENTAGES FOR EXPERIMENTAL COACHES (3 AND 4), PRACTICES 5 AND 16

Coach 3 Practice 5																	
Category	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Frequency	0	26	32	6	16	89	69	70	2	0	16	13	160	6	1	14	520
Percentage	0.0	5.0	6.2	1.2	3.1	17.1	17.1	13.3	13.5	0.4	0.0	3.1	30.8	1.2	0.2	2.7	100.0
Coach 3 Practice 16																	
Category	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Frequency	0	13	87	8	9	22	28	54	0	1	9	9	276	2	0	5	523
Percentage	0.0	2.5	16.6	1.5	1.7	4.2	5.4	10.3	0.0	0.2	1.7	1.7	52.8	0.4	0.0	1.0	100.0
Coach 4 Practice 5																	
Category	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Frequency	0	14	26	5	13	60	37	76	4	3	13	10	131	1	0	26	419
Percentage	0.0	3.3	6.2	1.2	3.1	14.3	8.8	18.1	1.0	0.7	3.1	2.4	31.3	0.2	0.0	6.2	100.0
Coach 4 Practice 16																	
Category	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Frequency	1	30	45	9	5	32	17	64	0	3	16	5	205	1	0	23	456
Percentage	0.2	6.6	9.9	2.0	1.1	7.0	3.7	14.0	0.0	0.7	3.5	1.1	45.0	0.2	0.0	5.0	100.0

each other, categories 5 and 12 were within 3 per cent; and category 6 was within 3.5 per cent.

A comparison of frequencies and percentages for Practices 5 and 16, coaches 1 and 2, has been presented in Table 11.

Percentages for Practices 5 and 16, coach 1, were within 1 per cent of one another for categories 1, 5, 9, 10, 14, and 15. Categories 2, 7, 8, and 16, were within 3 per cent.

Categories 1, 4, 5, 9, 10, 11, 12, 14, and 15 were within 1 per cent for coach 2, while categories 2 and 8 were within 3 per cent.

Category 6 statements (information or opinion) decreased from Practices 5 to 16 for coaches 1, 2, 3, and 4.

The percentage of category 3 statements (clarification and acceptance of skill and cognitive activities) increased for coach 1 (9.5 per cent to 13.6 per cent), coach 2 (6.9 per cent to 16.4 per cent), coach 3 (6.2 per cent to 16.6 per cent), and coach 4 (6.2 per cent to 9.9 per cent).

Percentages of category 7 statements (corrective feedback) increased for coach 1 (3.6 per cent to 4.8 per cent), however, decreased for coach 2 (15.1 per cent to 3.7 per cent), coach 3 (13.3 per cent to 5.4 per cent), and coach 4 (8.8 per cent to 3.7 per cent).

Category 13 behaviors (directed activity) increased for coach 1 by 24.3 per cent, coach 2 by 6.7 per cent, coach 3 by 22.0 per cent, and coach 4 by 13.7 per cent.

These comparisons enable a coach or an observer to determine whether or not there has been a shift in teacher influence. Category 3 behaviors increased for all coaches, while category 7 behaviors decreased for all but coach 1. It may be that coaches wanted

TABLE 11

COMPARISON OF OBSERVATIONAL SYSTEM FOR INSTRUCTIONAL ANALYSIS FREQUENCIES AND PERCENTAGES FOR CONTROL COACHES (1 AND 2), PRACTICES 5 AND 16

Coach 1 Practice 5																	
Category	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Frequency	0	8	37	3	40	69	14	51	0	1	20	24	102	3	1	18	391
Percentage	0.0	2.0	9.5	0.8	10.2	17.6	3.6	13.0	0.0	0.3	5.1	6.1	26.1	0.8	0.3	4.6	100.0
Coach 1 Practice 16																	
Category	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Frequency	0	19	57	2	18	12	20	53	0	1	6	14	211	0	0	6	419
Percentage	0.0	4.5	13.6	0.5	4.3	2.9	4.8	12.6	0.0	0.2	1.4	3.3	50.4	0.0	0.0	1.4	100.0
Coach 2 Practice 5																	
Category	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Frequency	0	17	34	12	8	56	75	79	4	3	17	6	167	9	0	9	496
Percentage	0.0	3.4	6.9	2.4	1.6	11.3	15.1	15.9	0.8	0.6	3.4	1.2	33.7	1.8	0.0	1.8	100.0
Coach 2 Practice 16																	
Category	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Frequency	1	23	76	11	6	32	17	57	4	1	15	5	187	5	0	23	463
Percentage	0.2	5.0	16.4	2.4	1.3	6.9	3.7	12.3	0.9	0.2	3.2	1.1	40.4	1.1	0.0	5.0	100.0

athletes to think about what they were doing rather than being dependent on their coaches for all feedback regarding performance. This may be indicative of an attempt by coaches to encourage self-evaluation by athletes.

According to the percentage use of categories, it would appear that the behaviors of coaches were fairly consistent from one practice to another.

There was a significant increase in the frequency of category 13 behaviors. As the season progressed, it might be expected that more time would be spent in the actual practice of drills and plays.

An increase in category 3 behaviors, as presented in the results, may be indicative of a shift towards the development of a positive atmosphere.

The decrease in category 6 statements may be the result of a need for less procedural information by athletes as practices progress.

Summary. There appears to be a shift towards clarification of skills by coaches and an increase in directed activity following an examination of the frequencies and percentages of interaction behaviors. Coaches spent less time in providing information or opinion as practices progressed. There may be a shift toward an indirect, athlete-centered atmosphere for all coaches. Coaches tended to be relatively consistent from Practice 5 to Practice 16 in their use of different behaviors.

Instances of Interrupted Activity

Flanders (1970) stated that "The teacher assumes a position of power and the pupils are forced into a uniform position of

subordination" (p. 314). If a coach frequently interrupts ongoing activity, she is exerting this power.

An examination of the tally sheets for each coach was carried out to determine the longest interruptions of activity by coaches. Coach 1, in Practice 5, interrupted activity for approximately thirty seconds (10 tallies) with category 6 behaviors. In Practice 16, there were nine consecutive tallies (twenty-seven seconds) in category 6 for coach 1. Coach 2's longest interruptions were thirty seconds (10 tallies) in category 6 behaviors, during Practice 5, and thirty three seconds (11 tallies) in category 6 statements, during Practice 16. Activity in Practice 5 was interrupted by coach 3 for twenty-seven seconds (9 consecutive tallies) when she was using category 6 statements. In Practice 16, activity was interrupted for twelve seconds (4 consecutive tallies) by category 8 behaviors. Coach 4 interrupted activity for twenty-seven seconds (9 tallies) with category 8 statements in Practice 5, and for fifteen seconds (5 tallies) with category 6 statements in Practice 16.

The amount of nonfunctional or irrelevant behavior was determined by the number of category 16 tallies. There was a total of 40 instances of nonfunctional behavior for coaches 3 and 4, Practice 5. Of these, 10 tallies resulted from using category 16 to mark the beginning and end of each tape segment. There were 14 cases of extended nonfunctional behavior. The remaining 16 were accounted for by confusion following directions and information, and interruptions by people coming into the gym to talk to coaches. In Practice 16, coaches 3 and 4, there were twenty-eight category 16 behaviors. Ten resulted from using category 16 to mark the beginning and end of tape

segments. The balance were accounted for by confusion following directions and by people entering the gym to talk with the coach.

In Practice 5, coaches 3 and 4, (Table 2) there were 291 instances of directed activity representing a total of 30.3 per cent of the total behavior segments. In Practice 16, coaches 3 and 4, (Table 3) there were 481 instances of directed activity representing a total of 49.1 per cent of the total behavior segments. In Practice 5, coaches 1 and 2, (Table 4) there were 269 cases of directed activity representing a total of 30.3 per cent of total behaviors. In Practice 16, coaches 1 and 2 (Table 5) there were 398 instances of directed activity representing 45.1 per cent of total behaviors. An average of eight to fifteen consecutive tallies for directed activity was determined by an examination of tally sheets. The convention of using category 13 to record athlete-to-athlete interaction accounted for several category 13 tallies. An examination of videotapes revealed that coaches were often talking with one or two players while others continued with the activity.

Instances of interruption of activity by athletes remained fairly consistent from Practice 5 to Practice 16 for coaches 3 and 4. In Table 2, of a total of 29 instances of athlete-emitted responses, 17 were followed by coach clarification and acceptance, 5 were in the steady state cell (11 x 11) representing extended athlete-initiated responses and 4 were followed by corrective feedback. In Practice 16 (Table 3), of a total of 25 instances of category 11 behaviors coach clarification and acceptance followed on 13 occasions, coach questions followed in 3 instances, requests and commands followed 3 times, and directed activity followed 3 times. In Practice 5, coaches 1 and 2

(Table 4), there were 37 instances of athlete-emitted responses. Of these, 25 were followed by coach clarification and acceptance, 4 by information or opinion, and 4 were in the steady state cell (11 x 11), extended athlete-initiated response. In Practice 16, coaches 1 and 2 (Table 5), there were 21 athlete-initiated behaviors. Of these, 11 were followed by coach clarification or acceptance, 3 by directed activity and 2 were in the steady state cell (11 x 11).

The percentage of athlete talk in the 11 x 11 cell in Practice 5, coaches 3 and 4 was 17.2 per cent, while in Practice 16 the percentage was 4 per cent. For coaches 1 and 2, the percentage of athlete talk in Practice 5 was 10.8, while in Practice 16 the percentage was 9.5 per cent.

Summary. From these results, it would appear that coaches have encouraged less athlete initiation in Practice 16 than in Practice 5. It may be, however, that more time was spent in doing activity rather than in talking.

Summary

This chapter has reviewed results of the study. Practices were videotaped and analyzed using Hough's OSIA. Matrices and tables were constructed and analyzed for evidence of the effect of a communication skills program.

Results indicated an increase in indirect teacher influence patterns for all coaches. A warm, accepting atmosphere appeared to exist for all coaches, however the ratio of athlete initiation responses increased in Practice 16 for coaches 3 and 4 which may be a reflection of the effect of the training program.

Instances of coach clarification and acceptance of skill and cognitive activities increased for all coaches, with coaches 3 and 4 being most consistent in clarifying and accepting athlete skill and cognitive activities. This may indicate that coaches 3 and 4 possessed the skills associated with indirect teacher influence and the training program focused coaches' awareness on these skills.

CHAPTER FIVE

DISCUSSION AND IMPLICATIONS FOR FUTURE RESEARCH

Discussion of Results

In this study, the author investigated the influence of a training program in communication skills upon coach-athlete interaction. The results, though encouraging, are not conclusive.

Surprisingly, as the basketball season progressed, results suggested that all coaches became more indirect in their patterns of influence. This appeared to be contrary to Flanders (1965) proposal that as goals become clear, the pattern of teacher influence becomes more direct. It may be that motivation decreased as the season progressed, therefore coaches sought to maintain interest by using an indirect coaching style.

Athletes' perceptions of their coaches may have influenced the results. Coach 1 (control) had coached basketball at the same school for seven consecutive years. The majority of her players were in grade 12 and had played for three years with coach 1. It might be expected that they were familiar with her coaching style and reacted favorably to it. Coach 2 (control) had been at the same school for two years and many of her players were in grade 12. Again, they were likely familiar with her coaching style. Coach 3 (experimental) was in her second year at the same school. In addition to having a majority of players in their second year of playing with her, coach 3 was involved in many out-of-practice activities with her players. Coach 4 (experimental) was also in

her second year. The majority of players, in this case, were in grade 10 or 11 with many of them playing for the first time. Familiarity with a coach's expectations and style may influence results.

All coaches involved in this study were successful in terms of the number of wins and losses for their teams during the season. Control coach 1's team was undefeated through regular season play. Control coach 2's team reached the provincial finals. Experimental coach 3's team reached zone finals. Experimental coach 4's team, although losing its first six games, won the last eight games of the season. It would seem that a coach need not be directive (authoritarian) in order to win games.

The amount of coach talk decreased from Practice 5 to Practice 16. This may have been influenced by an increase in the amount of time spent in directed activity.

Coaches might have possessed the communication skills used in the study prior to training. This would account for the indirect pattern of influence prevalent for all coaches in Practice 16.

Following the taping of Practice 16, experimental coaches 3 and 4 indicated to the investigators that they felt their verbalization had changed in that they heard themselves being more specific in feedback to athletes and more encouraging. Though the results do not clearly point to changes in coach influence patterns as a direct result of the training program, the coaches did perceive a change in their own behavior.

A decrease in the occurrence of category 7 behaviors (corrective feedback) from Practice 5 to Practice 16 was reflected in the results. Observation of videotapes, however, showed that in some instances

experimental coaches 3 and 4 were more specific in feedback to players during Practice 16. This change might be attributed to training in the skill of descriptive feedback.

Discussion of the Training Program

The training program provided coaches with an opportunity to learn and practice skills in active listening, providing feedback, paraphrasing, checking perceptions, and describing feelings. It was assumed that these skills would enhance a coach's relationship with her athletes by enabling her to: focus on constructive ways of dealing with feelings; clarify reasons for activities in practices; listen to what athletes have to contribute to practices; and provide feedback on performances in a constructive way. Application of these skills was expected to be reflected in the use of more praise and clarification behaviors, more specificity in corrective feedback and more athlete contributions to practices. Results reflected a change in the predicted direction for all but athlete-initiated behaviors. The actual number of athlete-initiated responses decreased for all coaches in Practice 16, however the ratio was higher for experimental coaches 3 and 4 than for control coaches 1 and 2. This might be a result of the training program.

Several important changes could be made in the training program. Time for discussion and practice of skills could be increased.

Videotape recordings, at regular intervals, could be used to provide feedback to coaches about changes in their verbal behavior.

Coaches' ability to identify and use communication skills

could be tested before initiation of the training program.

Implications for Future Research

Since there has been very little research conducted in the analysis of interaction between coaches and athletes, there are numerous possibilities for research.

Coaches could be taught how to use interaction analysis and modify their verbal behavior.

The connection between success and a coach's predominate interaction pattern might be investigated

Other studies could be conducted in other practice environments involving different sports.

Comparisons might be made between influence patterns of male and female coaches.

Flanders' (1971) suggestion of using wireless microphones might be used as this would allow the coach freedom to move about the gymnasium and may produce different results.

A larger sample of coaches and athletes could be used and athletes' perceptions of their coaches might be investigated.

Implications for Coaches

Coaches could experiment with communication skills and patterns of influence to determine how these affect their relationships with their athletes.

Coaches might learn communication skills and then teach them to athletes.

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APPENDIX A

COMMUNICATION TRAINING MANUAL

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COMMUNICATION TRAINING MANUAL

Introduction

The purpose of this manual is to introduce selected communication skills and to provide an opportunity for you to practice these skills.

This manual is divided into two parts: Part One provides instructions about what is to be accomplished during each session; and, Part Two provides information and describes activities for each session. There will be a total of five sessions.

PART ONE

Session I

During this session, the manual is to be discussed. You are to familiarize yourself with the definition and model of communication as used in this study. Information about the coach-athlete relationship is also provided. Read Section I of Part Two. The information will be discussed when you have completed the reading.

Session II

The skill of active listening (Gordon, 1974) will be practiced during Session II. Read the description of active listening and observe your leader's demonstration. Carry out the exercise in Section II of Part Two. After you have completed the exercise, discussion time will be provided.

Session III

This session deals with providing feedback to athletes.

Refer to Section III of Part Two for a description of this skill and for exercises.

Session IV

Four communication skills have been identified by Hundleby (1972) as being essential to the establishment of positive interpersonal relationships. Read the description of each of these skills in Section IV, Part Two. Your group leader will then conduct exercises designed for practicing each skill.

Session V

The objectives of Session V are to summarize the training sessions and to allow for discussion of any questions you may have.

PART TWO

Section I

A. Definition of Communication

The term communication is familiar to most people. Generally, it is taken to mean an exchange of dialogue between two or more people. Communication and interaction are often seen as being synonomous.

In describing teachers and children, Ginott (1972) discusses the concept of "congruent communication" which he defines as "Communication that is harmonious, authentic; where words fit feelings" (p. 67).

B. A Communication Model

This study used Gordon's (1974) communication model, Gordon presented communication as being a process where one person needs

something and expresses this need. Diagrammatically the process is:

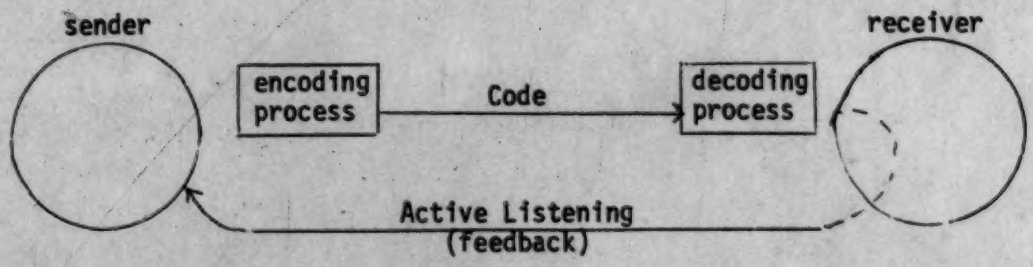

Figure 5

A Communication Model

(from Gordon, Thomas. T.E.T.: Teacher Effectiveness Training. New York: Peter H. Wyden, 1974, p. 68).

For example, a player feels a need and sends a message to the coach. To send this message, the player must select a manner in which to communicate with the other person (encoding). A code is selected and sent. The other person receives the message and interprets (decodes) its meaning. The decoding process may or may not be accurate. In order to check out the interpretation, the receiver feeds back what he understood. The sender may agree or disagree and clarify the message. Figure 6 illustrates an ahtlete-coach exchange.

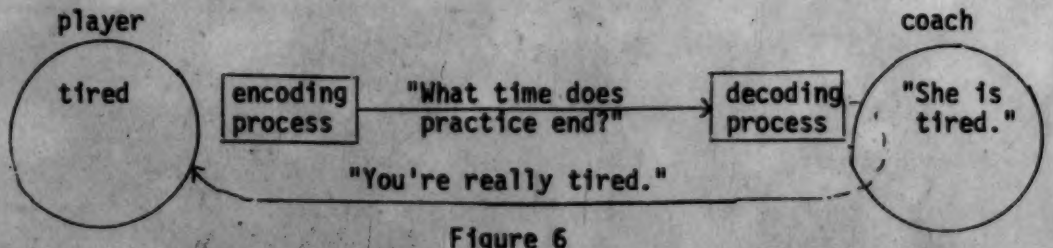

Figure 6

Coach-Athlete Exchange

The Key to active listening is to listen for the message underlying the words.

C. Coach-Athlete Relationship

The coach-athlete relationship falls into a helper-helpee classification. As such, there are certain conditions that lead to the development of a positive, constructive relationship.

Rogers (Corsini, 1973) has described three conditions necessary for effective counselling to occur. These conditions are applicable to any helping relationship:

a) empathy -- being able to understand things from another person's point of view, "standing in the other person's shoes."

b) positive regard -- accepting the person as he is and trusting in his potential to grow.

c) genuineness or congruence -- being real, sharing feelings, actions and words are compatible with one another.

A coach, by developing these behaviors, may improve her relationships with her athletes.

Flanders (1965) examined the effects of direct (authoritative) and indirect (integrative) teaching styles. Findings indicated that:

-- when goals were clear and shared (eg. winning a championship) the direct style of teaching was appropriate.

-- when goals were not clear or not shared or when emotions were high (eg. a close game or learning a new play under stress), the indirect style worked best.

There are times when it is appropriate to use a direct style, and other times, when an indirect style is called for. An effective coach is able to determine the timing for the use of each style.

Section II

A. Active Listening

"Active listening, . . . involves interaction with the student, and it also provides the student with proof (feedback) of the teacher's understanding" (Gordon, 1974, p. 66).

Refer to the communication model in Section I, Part Two, of your manual and you will see that active listening is synonomous with the feedback process. Basically, active listening is listening for the message underlying the words.

Complete the following exercise. Your responses to each statement will be discussed when you have finished.

Exercise 1. On a separate sheet of paper, write your responses to each of the following statements.

1. Player: let's do something different today.
   Coach:
2. Player: What are we doing next?
   Coach:
3. Player: Are you going to have a first string and a second string?
   Coach:
4. Player: Geez -- I can't do the play!
   Coach:
5. Player: That's not the way we did it last year.
   Coach:
6. Player: Can I play a different position?
   Coach:

Exercise 2. Your group leader will present several situations to which you are asked to respond verbally. Discussion will follow.

Section III

A. Providing Feedback

As illustrated in Gordon's model (1974), feedback is synonomous with active listening. In the exercises in Section II, you were listening for feelings. During this session, you will be dealing with providing feedback to athletes regarding their performances.

Learning theory gives import to the influence of feedback and distinguishes between positive and negative feedback. Logan (1969) defines positive feedback as ". . . instances in which the effect of the feedback is to further increase the event itself" (p. 15) and negative feedback as ". . . situations in which the effect of the feedback is to reduce the event producing the feedback" (p. 15). If applied to coaching, it would seem that negative feedback would tend to reduce the willingness of an athlete to attempt a skill.

Smith (1971) discussed the effect of feedback upon motivation and concluded that negative feedback might deter an athlete's performance. In commenting on a coach-athlete relationship, he stated "Frequently misbehavior or negative action by an athlete is met by the strong, negative reaction of the coach and we have a confrontation that escalates into a nasty incident that destroys rapport" (Smith, 1971, p. 92).

Exercise 1. Several incidents are described below. You are to write down, on a separate sheet of paper, how you would respond in

each situation. Discussion will follow.

1. Several players are practicing a "give-and-go". Player 1 is having difficulty coordinating her timing with her partner.
2. Players are practicing a weave in groups of three. As the first group comes down the floor, you notice that players are not filling three lanes.
3. You want to discuss the defense the team displayed during its last game. Shifting with the movement of the ball was a weak point. Generally describe the response you would make to this situation.
4. A player is practicing her jump shot at the basket. She has asked you to observe her and comment on her technique. She is not following through properly.
5. The team has been scrimmaging for 10 minutes. You stop the scrimmage and comment on how the guards are bringing the ball up the floor. You want them to move more quickly and use passes rather than dribbling a lot.
6. The team has been practicing offensive and defensive line-ups for free throws. Player 1 (on defense) has not been blocking out her match-up. Player 2 (on offense) has been moving into the free throw lane too soon. Provide feedback to the players.

Exercise 2. Your group leader will provide two additional situations in which you are asked to verbally provide feedback.

Section IV

A. Paraphrasing

Hundleby (1972) describes paraphrasing as "Letting the other know what meaning his statement evokes in you" (Handout 3:1). Paraphrasing is not restating in different words, what the other person has said. It is attempting to understand what the person is saying and letting that person know what his statement means to you.

For example:

Player: I don't think this play will work.

Coach: Do you mean that the passing is not fast enough?

B. Perception Check

A perception check is "Describing what you perceive the other feels -- tentatively and without evaluating him" (Hundleby, Handout 3:1).

I get the impression you're pretty discouraged with your play tonight. Is that right?

You look as though you're feeling left out because you didn't play tonight. Is that so?

C. Behavior Description

The focus of behavior description is upon observable events. Rather than making inferences or generalizations about a person's behavior or character, specific actions are described.

"Debbie has called most of the plays while Cindy hasn't called many at all" rather than "Debbie has to control everything -- a real star".

"I saw you throw the ball hard against the floor", rather than "Who do you think you are, acting like that in a practice?"

D. Description of Feelings

It is legitimate for a coach to have feelings and to express these feelings ". . . as information about your inner state and not as an accusation or coercive demand against the other" (Hundleby, Handout 3:1).

Description	Accusation or Demand
I feel disappointed that there were only 29 points scored tonight.	You guys are the worst bunch of players I've ever had the misfortune of coaching.
I feel ignored when I'm explaining a skill and someone is talking.	All right! You're always talking when I am, so get out!

Exercises. Your group leader will provide some situations which will give you an opportunity to practice each of these communication skills.

INSTRUCTIONS FOR TRAINER

Session I

1. Introduce manual
2. Allow trainees to read information
3. Discuss any questions

Session II

1. Allow time for trainees to complete written exercise. Discuss.
2. Discuss active listening. Refer to communication model.
3. Demonstrate active listening skill.
4. Provide additional situations for trainees to verbally practice active listening.
   a) Player: I don't understand what I'm supposed to do in this play.
   b) Player: Hey, that way of following through really works.
   c) Coaches role play situations where one was a player, the other a coach. The coach is to practice active listening.

Session III

1. Allow trainees to read information in manual.
2. Model the use of positive feedback.
3. Allow time for written exercise. Discuss.
4. Provide two situations for trainees to verbally practice providing feedback. Discuss (Use numbers 2, 3, 5, and

6 from written exercises).

5. Coaches provide situations they have encountered and role play using positive feedback.

Session IV

1. Allow time for trainees to read information.
2. Exercises:
   a) model paraphrasing
   b) provide examples for trainees to practice skill
   I. Player: I don't understand what I'm supposed to do in this play.
   II. Player: Hey, that way of following through really works.
   III. Coaches role play situations from their own experience. One is the player, the other the coach.
   c) model perception check
   d) provide examples
   I. A player is not working very hard in practice.
   Coach: You look tired today, Judy. Is that right?
   II. A player is working hard on a skill that she previously had trouble with.
   Coach: You seem more relaxed today and more confident, Kim. Is that right?
   III. Coaches practice using their own examples
   e) model behavior description. Contrast with inference.
   f) provide examples
   I. Player comes in late to a practice for the third time

in a row.

Coach: (in a neutral voice) This is the third time you have come in late for practice.

II. Players are to move as fast as possible down the floor using a weave. They are moving slowly.

Coach: This group is moving slowly.

III. Coaches role play using their own examples.

g) model description of feelings

h) provide examples

I. I feel really discouraged when people don't show up at practice and don't tell me beforehand why they aren't coming.

II. I'm really pleased with the way you worked so hard in the game last night. It was great!

III. Coaches role play using their own examples.

COACHES' WRITTEN RESPONSES

Session II

Coach 3

1. If you don't want to play basketball then you can leave.
2. You will find out soon enough.
3. No, some players will get to play more, depending on how hard you work in practice and whether you come to practice or not.
4. What is the problem?
5. Well, we will try it this way.
6. What position would you like to play?

Coach 4

1. We have definite things we must work on, so let's get going.
2. Well, let's see what you have learned from what we've just done. Then we can see what we can go on to.
3. Probably not. I have a tendency to play the people who consistently come out to practice and who really work at practice.
4. How do you know until you've <u>really</u> given it a try? Please try it and don't give up yet.
5. That's tough! We're working on plays the way I think they can work best.
6. What's the matter? Don't you understand what to do in your position?

Session III

Coach 3

1. You are cutting well to the basket. You must make your cut quicker.
4. You have to get your elbow under the ball and relax.

Coach 4

1. That's fine but try to concentrate a little more on how your partner is moving. Keep your eye on the ball and move as soon as you have passed the ball.
4. Good! Try to release the ball a little bit later.

APPENDIX B

OBSERVER TRAINING MANUAL

APPENDIX B

OBSERVER TRAINING MANUAL

Introduction

It is the purpose of this manual to acquaint observers with an interaction analysis system. This system will be used to analyze coaching sessions in high school girls' basketball. It is estimated that observer training will require 8-10 hours. It is necessary that the observer be competent in coding behaviors into one of the 16 system categories.

The manual is divided into two parts: Part One provides directions for each training sessions; Part Two provides information and exercises concerning interaction analysis.

PART ONE

Session One

During this session, you are to read Section I, Part Two of your manual: interaction analysis; and procedures for viewing videotapes. You will be able to ask questions of the trainer upon completion of your reading.

Session Two

You are to memorize the categories of Hough's Observational System for Instructional Analysis (OSIA) in Section II, Part Two. Then, complete the accompanying exercise.

Session Three

Section III, Part Two contains two transcripts (Robbins, 1973,

pp. 181-188). Use the OSIA Tally Form provided in the manual to practice recording behaviors.

Session Four

In order to practice the categorization of behaviors, you are to observe Observer Training Tape 1. Sit in front of the video monitor and playback equipment. You will require a stopwatch. View the tape for ten minutes, in order to obtain an idea of what took place in the practice before starting to record behaviors. Then, note the footage on the tape, rewind the tape, and begin tallying behaviors in three-second intervals on the OSIA Tally Forms provided at the back of the manual. If you are not sure of a segment of behavior, then leave a space and go back to the segment at another time.

Session Five

Another observer will now be working with you. Both of you will record behaviors on the OSIA Tally Forms. One observer will indicate when each three-second interval passes. Occasionally, stop the tape and discuss tallies with your partner. If there are any discrepancies, then replay that portion of the tape until both observers concur as to the proper category. When the reliability between observers is .85 or above according to Scott's coefficient, you are ready to go on with the analysis of actual data.

PART TWO

Section I

Interaction Analysis. Interaction analysis is a way of looking at what actually takes place in a classroom or gymnasium. It

is a descriptive method of recording data so that dynamic events may be studied.

The system used in this study is Hough's Observational System for Instructional Analysis (OSIA). Teacher and student (coach and athlete) verbal behavior is the focus of this system.

Flanders (1966) described an interaction analysis system as including:

a) clearly defined categories for analysis

b) an observation process and ground rules for coding data

c) steps for displaying data in a meaningful way

d) suggestions for application of information

Observation systems are descriptive rather than evaluative. They report what actually occurs in a classroom or a gymnasium.

Procedures for Viewing Videotapes. The observer is seated in front of a video monitor connected to a playback machine. Two observers are involved. Initially, they view the tapes together. Should there be disagreement on a category, the tape is rewound and replayed until observers concur on the rating.

The following ground rules are to be followed during observation (Hough, 1967, pp. 153-154):

> Rule number one: . . . the numbers representing the various categories are recorded. . .at three-second intervals. When more than one category occurs within a three-second interval all such categories are recorded.
>
> Rule number two: . . . student talk which is followed by student talk is indicated by inserting the number 13 in the

column of numbers at the point at which the first student stops talking and the second one begins.

Rule number three: . . . when two or more categories seem equally appropriate, and/or when a discrimination cannot be made between two or more categories, the observer should use the category numerically furthest from category 6.

Rule number four: . . . if the primary pattern of influence used by the teacher has been either direct or indirect, the observer should not shift to categories in the opposite area unless there is a clear indication of such a shift. This rule supersedes rule number three.

Rule number five: . . . the observer does not try to second-guess the intent of the teacher, but rather records the categories of behavior as he perceives their effect on the students.

Section II

Hough's OSIA. Hough's (1967, pp. 151-153) categories of observational analysis are described below. Memorize these categories:

I. Indirect Teacher Verbal Influence

1. Affective Clarification and Acceptance

- accepting, clarifying, and recognizing students' feelings
- teacher does not evaluate or judge a student
- may recall or predict students' emotions or feelings, or a reaction to present emotions
- encouragement that does not praise or reward.

2. Praise and Reward
   - statements indicating positive reaction to student behavior
   - statements praising or rewarding past, present, or predicted behavior
   - statements showing that the teacher agrees with student behavior.
3. Cognitive and Skill Clarification and Acceptance
   - nonevaluative statements accepting or clarifying students' ideas or performance
   - statement paraphrasing or restating what a student has said
   - statements to help a student think about what he has said or done
   - statements such as "um hum", "OK", "go on", except when indicating praise.
4. Teacher Questions
   - questions that do not serve the function of other categories
   - may be questions about subject matter or procedure
   - may ask for student opinion about subject matter or procedure.
5. Response to Questions
   - direct answers to student questions
   - these answers may give information or opinion but must be directed toward answering student questions.

II. Teacher Direct Influence

6. Initiates Information or Opinion

- statements about content or procedure which provide information or give opinion
- rhetorical questions.

7. Corrective Feedback

- statements providing information about the incorrectness or inappropriateness of student behavior in cognitive and skill areas.

8. Requests or Commands

- directions, requests, and commands that the student is expected to follow
- includes situations in which a question has been asked and the student has not answered, so the student's name is stated and the question is asked again.

9. Criticism and Rejection

- statements criticizing or rejecting student ideas or behavior without defining why
- also includes sarcasm and rejection or denial of student feelings.

III. Student Verbal Behavior

10. Elicited Responses

- responses that are predictable because the questions ask for specific information. May be an incorrect response
- responses conforming to request or command. May be

an incorrect response

- statements such as "I don't know" are included
- unison responses.

11. Emitted Responses

- responses to broad questions or requests
- statements of opinions, feelings and judgment.

12. Student Questions

- comments asking for information or about content
- comments asking for opinions of the teacher or another student.

IV. Silence

13. Directed Practice or Activity

- all nonverbal behavior suggested by teacher. Shooting at basket, etc.
- also used to separate student-to-student interaction.

14. Silence and Contemplation

- all cases of silence where students are not working on a drill, reading a playbook, etc.
- silence following questions
- silence occasionally broken by talk
- silent periods used for thinking.

15. Demonstration

- silent periods when audio-visual aids are used
- nonverbal demonstration by teacher.

V. Nonfunctional Behavior

16. Confusion and Irrelevant Behavior

- instances when two or more people are talking and no

one is understood (except for unison responses)

- confused behavior in response to a direction
- irrelevant comments unrelated to what is happening in the classroom or gymnasium
- nonfunctional periods, eg. teacher goes to gym door to talk with someone.

Exercise. The following exercise is to provide you with an opportunity to practice identifying categories (adapted from Robbins, 1973). Cover the answer section while practicing and use a separate sheet of paper for marking your answers.

1. Direct statements by the coach would be classified under a code number from _____ to _____.
2. Acceptance of players' feelings would be coded under _____.
3. Statements of judgment, with suggestions for improvement, about the execution of a play is coded under _____.
4. When a coach replies to a player's question, _____ is used to code the coach's behavior.
5. A player's response to a coach's question "Which player brings the ball down the court in play number 3?", would require a code number of _____.
6. Confusion is coded by _____.
7. When a player asks for information it is coded by number _____.
8. Clarification of player ideas is coded under _____.
9. Agreeing with student behavior is coded by _____.
10. Thinking about a play situation requires the selection of

code _____.

11. A film on basketball defensive systems is coded by _____.
12. _____ describes a coach-asked question about subject matter.
13. Working on a skill at the basket would be coded by _____.
14. _____ codifies a statement such as "I feel terrible about the way I played last night".

Answers

1. 6 - 9
2. 1
3. 7
4. 5
5. 10
6. 16
7. 12
8. 3
9. 2
10. 14
11. 15
12. 4
13. 13
14. 11

Section III

Use the attached OSIA Tally Forms to practice recording behaviors. Record each interaction on the accompanying transcript (Robbins, 1973, pp. 181-188).

TRANSCRIPT 1

TEACHER: Hello children. How are you this morning? Before we start I would like to remind you that tomorrow your parents can come to school. Please remind them. Run and stop on the signal. Go!

CHILDREN: (Activity response) (running)

TEACHER: Stop! --pause-- Go!

CHILDREN: (Activity response)

TEACHER: Stop! Go!

CHILDREN: (Activity response)

TEACHER: Stop! Show changes in direction this time.

CHILDREN: (Activity response)

TEACHER: Good, well done!

CHILDREN: (Activity response)

TEACHER: Try to run more quietly!

CHILDREN: (Activity response)

TEACHER: Stop! Find a partner. --pause-- One of you put up your hand. --pause-- You are number 1 the other is number 2. Number 1 chase number 2. Go!

CHILDREN: (Activity response)

TEACHER: Use changes of direction and stops and starts. Stop! Get a ball and throw and catch the ball in two's!

CHILDREN: (Activity response)

TEACHER: Stop! Look this way. Throw and catch the ball while you are moving.

CHILDREN: (Activity response)

TEACHER: Keep your eyes open. Watch for other people. Try to throw the ball in front of your partner.

CHILDREN: (Activity response)

TEACHER: That's better. You are not dropping the ball as much now.

CHILDREN: (Activity response)

TEACHER: Stop - pay attention. In a football game if the quarterback is going to pass the ball to a pass receiver he must pass in front. If he passes at him by the time the ball has gone through the air the catcher has moved. Can you use your feet to pass the ball?

CHILDREN: (Activity response)

TEACHER: Don't kick the ball too hard because your partner will not be able to control the ball.

CHILDREN: (Activity response)

TEACHER: What part of your foot is best to pass with? --pause-- John?

JOHN: --pause-- I think that I find the side best. I have more control with the side.

TEACHER: Very good John! As you pass the ball, children, use the side of your foot.

CHILDREN: (Activity response)

TEACHER: Remember you have two feet. Sometimes use your left foot and sometimes use your right foot.

CHILDREN: (Activity response)

TEACHER: Keep your feet moving so that you can adjust your position more easily.

CHILDREN: (Activity response)

TEACHER: Today we are going to play a passing game. Get into your groups of six. --pause--

CHILDREN: (Getting into groups of six - noisily)

TEACHER: Stop! You can get into groups much more quietly!! Carry on.

CHILDREN: (Get into groups)

TEACHER: Red team will play against Blue and Yellow team will play against the Green team. In order to score a point one team must pass the ball to one of his team who has run over the end zone. Do you all understand?

CHILDREN: Yes!

TEACHER: Carry on.

CHILDREN: (Activity response)

TEACHER: Spread out. Look for people on your own side. Make those passes accurate! Check your opponents. Don't give them too much room.

TEACHER: Put the balls away. Run in different directions.

CHILDREN: (Putting the balls away then running)

TEACHER: Line up by the door.

TRANSCRIPT 2

TEACHER: Good morning class. This morning we are going to work on different ways of transferring weight. Run around the gym.

CHILDREN: (Activity response) (Running in a circle)

TEACHER: Stop! What can you say about the direction of your running? Yes John.

JOHN: We are all running in a circle.

TEACHER: That's right! Is that the only direction that we can run?

(Teacher points to child).

CHILD: No! We can run all over the space.

TEACHER: Yes. Run all over the gym floor. Take up all the space.

CHILDREN: (Activity response) (Run all over gym floor)

TEACHER: Stop and look this way! You are still leaving big spaces and following each other. Spread out, keep away from everyone. Go!

CHILDREN: (Activity response)

TEACHER: That's much better, you are filling up all the space - good. Can you find other ways of travelling on your feet?

CHILDREN: (Activity response)

TEACHER: Good Vonne, that's it. See if you can find different ways of travelling.

CHILDREN: (Activity response)

TEACHER: Stop! Let's watch Stephen and Christine!

CHILDREN: (Demonstrate)

TEACHER: What do you notice about Stephen's feet and Christine's feet? Yes Mary.

MARY: They are both very quiet.

TEACHER: Yes that's good. Can you think of anything else? --pause-- Mark?

MARK: --pause-- Stephen is using one foot and Christine two feet.

TEACHER: Yes, Mark, you were watching carefully. As you are travelling this time sometimes use one foot and sometimes two feet.

CHILDREN: (Activity response)

TEACHER: Well done you are working well this morning. Stop. Jump on

the spot!

CHILDREN: (Activity response) (Jumping on the spot)

TEACHER: Up a little higher! Land more quietly. Jim, you are landing heavily, bend your ankles as you land. Stop! Close your eyes and jump. Can you hear anything?

CHILDREN: (Activity response) Oh yes.

TEACHER: Jump once and land softly. James, I said once!! Please pay attention and listen!!

CHILDREN: (Activity response) --pause--

TEACHER: Curl up small.

CHILDREN: (Activity response) (in all different positions)

TEACHER: What part of you is touching the ground? --pause-- Change it to a different part!

CHILDREN: (Activity response)

TEACHER: What sort of things roll best? --pause-- Pay attention!!

CHILD: A ball.

TEACHER: A football or a soccer ball?

CHILD: Soccer ball.

TEACHER: (Demonstrates roll) When you roll try to tuck everything in.

CHILDREN: (Activity response) (Rolling)

TEACHER: Look this way! If you tuck parts in you will not hurt yourself. It is surprising how easy it is if you practice. Put your hands on the ground and kick your feet up in the air!

CHILDREN: (Activity response)

TEACHER: Good, Pat, that was very nice. Keep your chin up and make your hands strong.

CHILDREN: (Activity response)

TEACHER: Can you bring your feet down in a different place?

CHILDREN: (Activity response)

TEACHER: That's good! Stop! Take a hoop and carry on working.

CHILDREN: (Very noisy getting hoops, some children playing)

TEACHER: Stop! This just will not do. You are making too much noise. There is no need for it. Put your hoop away!

CHILDREN: (Put hoops away)

TEACHER: Now get your hoop quietly and carry on working.

CHILDREN: (Get hoops out)

TEACHER: Much better! I liked that! Put your hoop on the ground and move into it and out of it using your feet.

CHILDREN: (Activity response)

TEACHER: Good Jean! Let's look at Jean.

JEAN: (Demonstrates)

TEACHER: How could she improve?

CHILD: By stretching her feet.

TEACHER: Yes! See if you can show as many ways as Jean did!

CHILDREN: (Activity response)

TEACHER: Put your hands in the hoop, kick your feet up in the air and bring them down somewhere else.

CHILDREN: (Activity response)

TEACHER: Come down softly. Stretch your legs a little more! Keep working James!! Look this way!

CHILDREN: (Stop working) --pause--

TEACHER: Make some bridge-like shapes over your hoop.

CHILDREN: --pause-- (Activity response)

TEACHER: Sometimes seat up. Sometimes tummy up. Sometimes side up. Rest for a moment. --pause-- Choose your favorite bridge-like shape and practice it to make it as good as you can.

CHILDREN: (Activity response) (Bridge shapes)

TEACHER: Well done, there are some good bridges. I like them. Put your hoops away and line up by the door. Thank you boys and girls. Today we worked on rolls, travelling and balancing.

OSIA TALLY FORM

Coach _____ Practice Number _____

Situation _____

APPENDIX C

RESULTS OF INTRAOBSERVER AND INTEROBSERVER RELIABILITY

APPENDIX C

RESULTS OF INTRAOBSERVER AND INTEROBSERVER RELIABILITY

According to Flander's guidelines (1966), observer reliability must be established using Scott's coefficient. He suggested that the coefficient of reliability must be .85 or higher. In Tables 12 and 13, are the results for intraobserver reliability for observers 1 and 2, respectively. In Columns 2 and 3, the total number of tallies in each category for the first and second observation periods are tested. In Columns 4 and 5 the percentage of the total tallies for each category are indicated. The difference between Columns 4 and 5 are shown in Column 6. The percent of agreement expected by chance is found in Column 7. This percentage number is used to calculate Scott's coefficient.

In Tables 14 and 15, the results for interobserver reliability for observers 1 and 2, respectively are shown. Data is calculated in the same manner as for Tables 12 and 13.

Intraobserver Reliability

Observer 1 achieved .858 reliability, according to Scott's coefficient (Table 12). Observer 2 achieved .8527 reliability (Table 13).

Interobserver Reliability

Data was analyzed on two separate occasions to determine reliability between observers. Results showed that observers achieved .866 (Table 14) and .855 (Table 15) reliability per Scott's coefficient.

TABLE 12

INTRAOBSERVER RELIABILITY FOR OBSERVER 1

Category	1st obs	2nd obs	% 1st obs	% 2nd obs	% diff	$\frac{(\text{Ave }\%)^2}{100}$
1	0	0	0.0	0.0	0.0	0.0
2	13	12	7.8	6.89	.91	.118
3	20	15	9.8	13.79	3.99	.474
4	0	0	0.0	0.0	0.0	0.0
5	4	3	1.96	2.75	.79	.055
6	4	7	4.575	2.75	1.825	.013
7	15	12	7.84	10.34	2.50	.082
8	17	26	16.99	11.72	5.27	2.059
9	1	2	1.30	.689	.611	.009
10	0	0	0.0	0.0	0.0	0.0
11	0	1	0.65	0.0	.65	.001
12	4	3	1.96	2.75	.79	.055
13	63	68	44.44	43.44	1.00	19.30
14	0	0	0.0	0.0	0.0	0.0
15	0	0	0.0	0.0	0.0	0.0
16	4	4	2.61	2.75	.14	.007
	145	153	99.925	97.869	18.476	22.173

Scott's Coefficient .858

TABLE 13

INTRAOBSERVER RELIABILITY FOR OBSERVER 2

Category	1st obs	1st obs	% 1st obs	% 2nd obs	% diff	$\frac{(\text{Ave } \%)^2}{100}$
1	0	0	0.0	0.0	0	0
2	14	13	9.15	8.72	.43	.799
3	14	10	9.15	6.71	2.44	.628
4	0	0	0.0	0.0	0.0	0.0
5	5	5	3.26	3.35	.09	.109
6	7	5	4.57	3.35	1.22	.156
7	10	12	6.53	8.05	1.52	.531
8	24	25	15.68	16.77	1.14	2.631
9	2	2	1.30	1.34	.04	.017
10	0	0	0.0	0.0	0.0	0.0
11	0	1	0.0	.67	.67	.001
12	5	3	3.26	2.01	1.25	.069
13	68	68	44.44	45.63	1.19	20.281
14	0	0	0.0	0.0	0.0	0.0
15	0	0	0.0	0.0	0.0	0.0
16	4	5	2.61	3.35	.74	.088
	153	149	99.95	99.95	10.73	25.310

Scott's Coefficient .8527

TABLE 14

INTEROBSERVER RELIABILITY FOR TRAINING SESSION 1

Category	1st obs	2nd obs	% 1st obs	% 2nd obs	% diff	$\frac{(\text{Ave }\%)^2}{100}$
1	0	0	0.00	0.00	0.000	0.00
2	7	7	4.63	4.861	.231	.224
3	19	17	12.582	11.805	.777	1.485
4	1	1	0.662	00.694	.032	.004
5	11	9	7.284	6.250	1.034	.456
6	18	18	11.920	12.500	.580	1.490
7	8	7	5.298	4.861	.437	.257
8	16	16	10.596	11.111	.515	1.177
9	0	0	0.000	0.000	.000	0.000
10	0	0	0.000	0.000	.000	0.000
11	2	2	1.324	1.388	.064	.018
12	13	10	8.609	6.944	1.665	.603
13	50	51	33.112	35.416	2.304	11.737
14	0	0	0.000	0.000	0.000	0.000
15	0	0	0.000	0.000	0.000	0.000
16	6	6	3.973	4.166	.193	.164
	151	144	99.990	99.996	7.832	17.615

Scott's Coefficient .866

TABLE 15

INTEROBSERVER RELIABILITY FOR TRAINING SESSION 2

Category	1st Obs	2nd Obs	% 1st Obs	% 2nd Obs	% diff	$\frac{(\text{Ave } \%)^2}{100}$
1	1	1	.704	.704	.000	.004
2	1	1	.704	.704	.000	.004
3	19	19	13.380	13.380	.000	1.790
4	0	0	00.000	00.000	.000	0.000
5	9	10	6.338	7.042	.704	.447
6	8	8	5.633	5.633	.000	.316
7	9	9	6.338	6.338	.000	.400
8	17	17	11.971	11.971	.000	1.432
9	0	0	00.000	00.000	.000	0.000
10	0	0	00.000	00.000	.000	0.000
11	2	3	1.408	2.112	.704	.030
12	8	8	5.633	5.633	.000	.031
13	63	63	44.366	42.957	1.409	19.053
14	0	0	00.000	00.000	.000	0.000
15	0	0	00.000	00.000	.000	0.000
16	5	5	3.521	3.521	.000	.123
	142	142	99.996	99.995	2.817	23.630

Scott's Coefficient .855

APPENDIX D

INDIVIDUAL MATRICES FOR COACHES BASED ON HOUGH'S OBSERVATIONAL SYSTEM FOR INSTRUCTIONAL ANALYSIS

TABLE 16

HOUGH'S OBSERVATIONAL SYSTEM FOR INSTRUCTIONAL ANALYSIS
MATRIX FOR CONTROL COACH 1, PRACTICE 5

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T
1	0																0
2		0	1					2					5				8
3		1	0			6		5			2	5	10			2	37
4				1				1		1							3
5				1	15	3		3			1	6	7	2		2	40
6			1			48		2			8	2	4	1		3	69
7							3	1			1	2	6		1		14
8		1	2				3	17			2	3	20			3	51
9																	0
10						1				0							1
11			15			3					2						20
12					22							1				1	24
13		6	10		1	4	8	18			4	4	44			3	102
14			1		2									0			3
15													1		0		1
16			1	1		4		2				1	5			4	18
T	0	8	37	3	40	69	14	51	0	1	20	24	102	3	1	18	391
%	0.0	2.0	9.5	0.8	10.2	17.6	3.6	13.0	0.0	0.3	5.1	6.1	26.1	0.8	0.3	4.6	100.0

Indirect Talk/Direct Talk $\frac{88}{134} = (0.65)$ Student Talk/Teacher Talk $\frac{45}{222} = (.20)$

Silence/Talk $\frac{106}{267} = (0.39)$

TABLE 17

HOUGH'S OBSERVATIONAL SYSTEM FOR INSTRUCTIONAL ANALYSIS
MATRIX FOR CONTROL COACH 1, PRACTICE 16

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T
1	0																0
2		0				1		4					13			1	19
3		4	5	1		1	1	16		1		2	25			1	57
4				0							1		1				2
5					4			1			2	2	9				18
6				1		3						1	7				12
7			1				1	1			2		12				20
8		2	4				2	8				4	33				53
9									0								0
10			1							0							1
11			5								0		1				6
12					14							0					14
13		13	41			7	13	23				5	107			2	211
14														0			0
15															0		0
16											1		3			2	6
T	0	19	57	2	18	12	20	53	0	1	6	14	211	0	0	6	419
%	0.0	4.5	13.6	0.5	4.3	2.9	4.8	12.6	0.0	0.2	1.4	3.3	50.4	0.0	0.0	1.4	100.0

Indirect Talk/Direct Talk $\frac{96}{85} = (1.13)$

Student Talk/Teacher Talk $\frac{21}{181} = (0.12)$

Silence/Talk $\frac{211}{202} = (1.04)$

TABLE 18

HOUGH'S OBSERVATIONAL SYSTEM FOR INSTRUCTIONAL ANALYSIS
MATRIX FOR CONTROL COACH 2, PRACTICE 5

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T
1	0																0
2		0	4				2	3	1				6	0	0	1	17
3		1	7				2	4			3		17				34
4			1	0	1	1		1		1			6	1			12
5					3	1					1	1	1	1			8
6				1		38		1	1		3	1	5	4		2	56
7		1	1	1			30	12			6	1	21	2			75
8		1	1	1		6	3	16				1	48	1		1	79
9				1				1	0			1	1				4
10							2			1							3
11			10	1		1	1	1	1		2						17
12			1	1	4							0					6
13		14	9	5		4	32	37	1	1	2	1	59			2	167
14						3	3	2					1	0			9
15															0		0
16				1		2		1					2			3	9
T	0	17	34	12	8	56	75	79	4	3	17	6	167	9	0	9	496
%	0.0	3.4	6.9	2.4	1.6	11.3	15.1	15.9	0.8	0.6	3.4	1.2	33.7	1.8	0.0	1.8	100.0

Indirect Talk/Student Talk $\frac{71}{214}$ = (0.33) Student Talk/Teacher Talk $\frac{26}{285}$ = (0.09)

Silence/Talk $\frac{176}{311}$ = (0.56)

TABLE 19

HOUGH'S OBSERVATIONAL SYSTEM FOR INSTRUCTIONAL ANALYSIS
MATRIX FOR CONTROL COACH 2, PRACTICE 16

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T
1	0										1						1
2		2	5				2	2					11			1	23
3		6	18			1		5	1		2		44			1	76
4			1	0	1					1		2	2	3		1	11
5				1	1						1		3				6
6						16		4			3		5	2		2	32
7				1			5						11				17
8		2		1		4		26	2				21			1	57
9									0		1		3				4
10			1							0							1
11	1	1	6	1	1	1		1	1		2						15
12				2	3							0					5
13		12	46	5		7	9	16			4	3	80			5	187
14			1			1		1					2	0			5
15															0		0
16						2	1	2			1		5			12	23
T	1	23	76	11	6	32	17	57	4	1	15	5	187	5	0	23	462
%	0.2	5.0	16.4	2.4	1.3	6.9	3.7	12.3	0.9	0.2	3.2	1.1	40.4	1.1	0.0	5.0	100.0

Indirect Talk/Direct Talk $\frac{117}{110} = (1.06)$ Student Talk/Teacher Talk $\frac{21}{227} = (0.09)$

Silence/Talk $\frac{192}{248} = (0.77)$

TABLE 20

HOUGH'S OBSERVATIONAL SYSTEM FOR INSTRUCTIONAL ANALYSIS
MATRIX FOR EXPERIMENTAL COACH 3, PRACTICE 5

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T
1	0																0
2		2	4				1	7					12				26
3	0	3	2			8	1	2			1	1	13	1			32
4			2	0		1					1		1	1			6
5			2		4			4			2	3	1				16
6			2	2		58	1	5			3	3	9	3		3	89
7		2	2			1	23	4			6	1	28	1	1		69
8		5		2		5	2	18				2	33			3	70
9									0				2				2
10										0							0
11			8			1	4				3						16
12					12							1					13
13		14	9			7	35	28	2			2	60			3	160
14			1			4		1						0			6
15						1									0		1
16			0	2	0	3	2	1	0	0	0	0	1	0	0	5	14
T	0	26	32	6	16	89	69	70	2	0	16	13	160	6	1	14	520
%	0.0	5.0	6.2	1.2	3.1	17.1	13.3	13.5	0.4	0.0	3.1	2.5	30.8	1.2	0.2	2.7	100.0

Indirect Talk/Direct Talk $\frac{80}{230}$ = (0.35)

Student Talk/Teacher Talk $\frac{29}{310}$ = (0.09)

Silence/Talk $\frac{167}{339}$ = (0.49)

TABLE 21

HOUGH'S OBSERVATIONAL SYSTEM FOR INSTRUCTIONAL ANALYSIS
MATRIX FOR EXPERIMENTAL COACH 3, PRACTICE 16

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T
1	0																0
2		1	3										9				13
3		5	12	1		1		6				2	60				87
4			1	0				1		1	3	1	1				8
5			1		0	1		1					6				9
6						5		1				1	15				22
7			2				6	1			1		18				28
8						3	1	18			1	2	27	2			54
9									0								0
10			1							0							1
11			5	1				1			0		2				9
12				1	8							0					9
13		7	62	5	1	12	21	22			4	3	136			3	276
14								2						0			2
15															0		0
16								1					2			2	5
T	0	13	87	8	9	22	28	54	0	1	9	9	276	2	0	5	523
%	0.0	2.5	16.6	1.5	1.7	4.2	5.4	10.3	0.0	0.2	1.7	1.7	52.8	0.4	0.0	1.0	100.0

Indirect Talk/Direct Talk $\frac{117}{104} = (1.12)$ Student Talk/Teacher Talk $\frac{19}{221} = (0.08)$

Silence/Talk $\frac{278}{240} = (1.15)$

TABLE 22

HOUGH'S OBSERVATIONAL SYSTEM FOR INSTRUCTIONAL ANALYSIS
MATRIX FOR EXPERIMENTAL COACH 4, PRACTICE 5

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T
1	0																0
2		2						4					7			1	14
3		1	2		1	4	2	5			3	2	6				26
4				0						2	1		1			1	5
5				1	4	1		1			2	2	2				13
6			1			40	1	5					5	1		7	60
7			3			1	15	1	1		2	1	12			1	37
8		3	3	1		4	2	35				1	25			2	76
9						1	1		1				1				4
10			1		1					1							3
11			9	1		1					2						13
12				1	7							1				1	10
13		8	5	1		5	16	20	2		2		68			4	131
14			1											0			1
15															0		0
16			1			3		5			1	3	4			9	26
T	0	14	26	5	13	60	37	76	4	3	13	10	131	1	0	26	419
%	0.0	3.3	6.2	1.2	3.1	14.3	8.8	18.1	1.0	0.7	3.1	2.4	31.3	0.2	0.0	6.2	100.0

Indirect Talk/Direct Talk $\frac{58}{177}$ = (0.33) Student Talk/Teacher Talk $\frac{26}{235}$ = (0.11

Silence/Talk $\frac{132}{261}$ = (0.51)

TABLE 23

HOUGH'S OBSERVATIONAL SYSTEM FOR INSTRUCTIONAL ANALYSIS
MATRIX FOR EXPERIMENTAL COACH 4, PRACTICE 16

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T
1	0												1				1
2		2	5				1	1			1		20				30
3			14			2	1	1			2	1	21	1		2	45
4				0		1				3	2	1	1			1	9
5					1	1							2			1	5
6						16		1			1		14				32
7		1				1	5						10				17
8				1		4	1	27			3		26			2	64
9									0								0
10			1							0	1					1	3
11	1	1	8	2				2			1		1				16
12					4						1	0					5
13		26	16	5		7	8	25			3	2	106			7	205
14			1											0			1
15															0		0
16				1			1	7			1	1	3			9	23
T	1	30	45	9	5	32	17	64	0	3	16	5	205	1	0	23	456
%	0.2	6.6	9.9	2.0	1.1	7.0	3.7	14.0	0.0	0.7	3.5	1.1	45.0	0.2	0.0	5.0	100.0

Indirect Talk/Direct Talk $\frac{90}{113}$ = (0.80) Student Talk/Teacher Talk $\frac{24}{203}$ = (0.12)

Silence/Talk $\frac{206}{227}$ = (0.91)